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JOURNAL OF THE INDIAN MEDICAL ASSOCIATION

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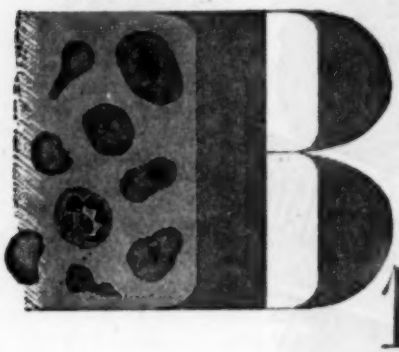

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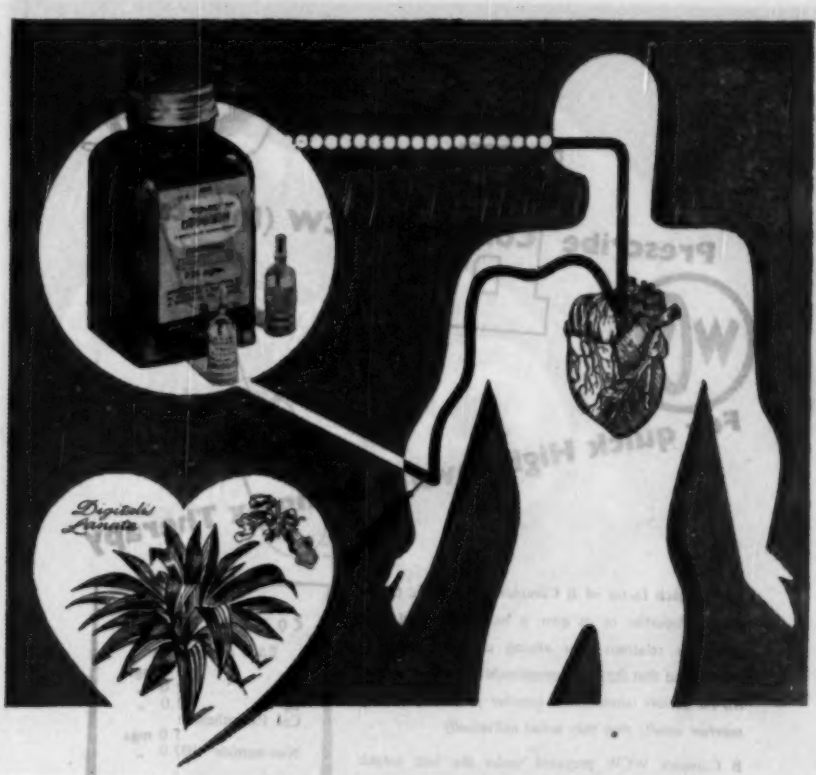

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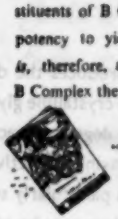

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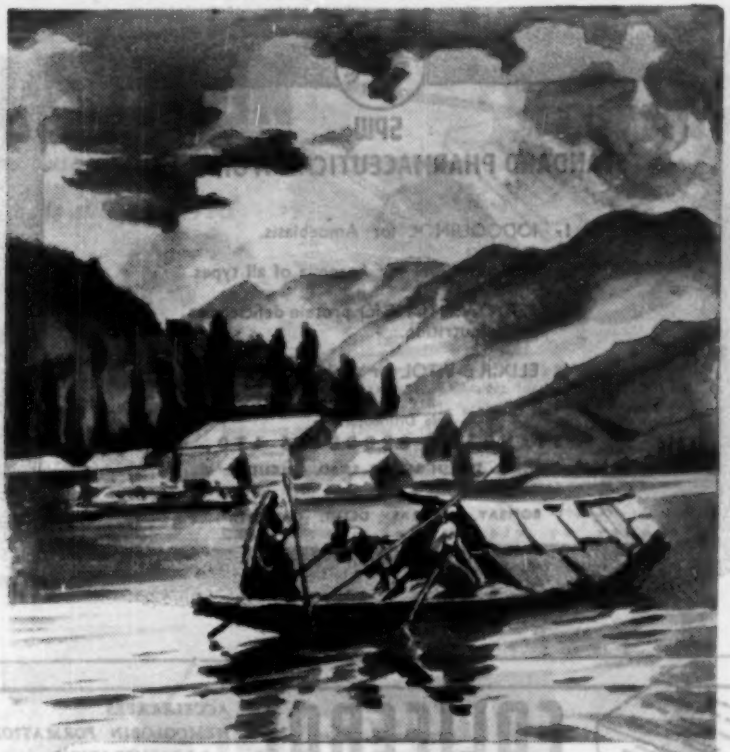

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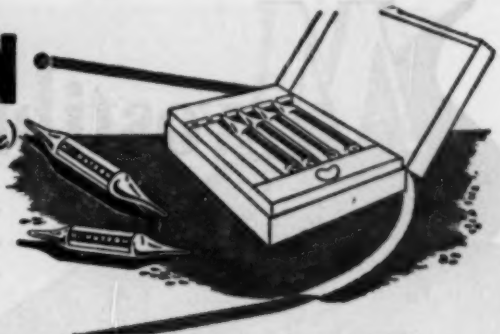

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ANOMALIES OF POWER AS A CAUSE OF DELAYED LABOUR *

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Parturition, as we all know, may be looked upon somewhat fancifully as a process in which a passenger is driven onward through a passage by a power which is acting from behind.

The power is the uterine power backed by the accessory power which comes from the contraction of the abdominal muscles.

The uterine power first manifests itself as the general contents pressure which pushes the dilating wedge into the cervix. After the rupture of membranes, when the fundus comes into contact with the body of the foetus, it becomes more definitive and operates as the Foetal Axis Pressure, which is transmitted through the spine of the foetus to the presenting part.

The uterine power originates not meely from the contraction of the uterus but also from its retraction. Both contraction and retraction are influenced by the tonus of the musculature. Hypertonus is as much a disadvantage as hypotonus. The optimal tonus is intermediate between the two. It may sound strange that good relaxation of the musculature between the contractions is also a condition precedent to good uterine action. A uterus that does not relax well does not act well.

As labour advances, various reflex influences come to operate on the uterus. They may augment or inhibit the contraction. The augmentory influences play a great part in the process of parturition. They enhance the action of the uterus at the right time. Thus when the dilating wedge presses on the cervix, the uterine contractions become stronger. Again, when the presenting part presses on the pelvic floor, the uterine contractions not only become vigorous but assume a strong bearing-down character, calling to their aid the contraction of the abdominal muscles. The lack of these augmentory influences or the presence of inhibitory influences may derange the act of parturition.

Power, I may emphasise, is the dominant factor in the mechanism of labour. The greatest blessing which a parturient woman can have is good power, *i.e.*, strong pains. Many mechanical difficulties vanish before strong pains. Contrariwise, the inefficient pains are the worst handicap for a woman in labour.

Let us now ask what constitutes 'good pains'. Good pains have several characteristics. They are strong and occur at regular intervals, which are neither too long nor too short. At each pain, the contraction comes on gradually, reaches an acme and declines slowly. There is good relaxation of the musculature in the interval.

Progress, it should be noted, takes place chiefly during the phase of increase of contraction. Sustained contraction is useless; it merely causes suffering. Nagging pains without good relaxation in the intervals also tire out the patient.

In estimating the character of pains, we must not overlook the physiological truth that even under normal conditions the character of the pains fluctuates from time to time. At times they slightly flag off, but soon after, they come back with renewed vigour. It seems as if the uterus takes rest from time to time. These things have nothing to do with inertia.

We now proceed to briefly consider the faults of power which may delay labour. These are—

1. Weakness of accessory power.
2. Misdirection of uterine axis.
3. Irregular contraction of the uterus.
4. Uterine inertia.
5. Tonic contraction of the uterus.
6. Formation of contraction ring.

The first two faults are illustrated by the condition of pendulous belly. This may call for the application of an abdominal binder or artificial rupture of the membranes to favour the engagement of the head, if this process is long delayed.

IRREGULAR CONTRACTION OF THE UTERUS

Irregular contraction of the uterus means a 'colicky uterus'. It is a sign of irritability of the uterus. It predisposes to the development of contraction ring or spasmodic rigidity of the cervix. We should not neglect to treat such cases with sedatives. If sedatives be witheld the patient may be tired out and other complications may follow.

UTERINE INERTIA

Uterine inertia may be primary or secondary. Primary inertia means sluggishness of the uterus,

* Read at the Scientific Section of the Silver Jubilee Session of All-India Medical Conference held at Calcutta, Dec. 1948.

while secondary inertia means exhaustion of the uterus. Sometimes the uterus gets exhausted before it has done the usual work, possibly on account of some hormonal dyscrasia. Anyhow, the exhausted uterus calls only for the sedatives; it contra-indicates oxytocics and artificial delivery.

Primary inertia creates different problems in different stages of labour. In the 2nd stage, artificial delivery may be easily undertaken, when needed. But in the 1st stage, artificial delivery means a serious job, as the cervix is not yet fully dilated.

Treatment in the 1st stage has, therefore, to run along conservative lines, and this ,generally suffices except in extreme cases.

The first thing to be done here is to eliminate the inhibitory influences by cheering up the patient, clearing off the fussy relatives and evacuating full bladder and rectum.

Next, it is necessary to administer fluid, nourishment and sedatives. About fluid and nourishment, we are to remember that it is a mistake to force these by mouth, when the patient is reluctant to take them. Women in protracted labour cannot digest food well, and a large amount of food and fluid may remain in the stomach for a long time. A wise course, under such circumstances, is to give repeated intravenous injections of glucose solution.

I wish to say a few words about the propriety of rupturing the membranes artificially and administering oxytocics in cases of primary inertia in the 1st stage of labour.

Except in cases of hydramnios, the membranes should not be ruptured to help the dilatation of the cervix, though such practice prevails in some of the continental clinics. So long as the membranes are intact, the foetus is safe. There is no knowing whether the artificial rupture of the membranes will hasten or retard the process of dilatation of the cervix.

Oxytocics should be shunned in the 1st stage. Pituitrin may bring on disaster. Quinine is uncertain in its action. Oestrogens merely sensitise the uterus; they neither evoke nor intensify contractions. Acetylcholine has not proved to be of much value.

Now I wish to refer to the existence of an extreme type of primary inertia, which has been named 'Dystocia Dystrophia Syndrome' by De Lee and 'Inertia Syndrome' by Goodall.

It has several characteristic features. The patient, generally an elderly primigravida, is obese and shows other signs of dystrophia adiposo-genitalis (hypopituitarism). The pelvis is of the android type. The foetus is post-mature. The position of the head is occipito-posterior. It is found to be non-engaged when labour begins. Membranes rupture prematurely. Pains are weak from the beginning, and the 1st stage is protracted.

This is a very troublesome condition to deal with. Its treatment is not standardised. If the ordinary treatment for primary inertia does not suffice, caesarean section may have to be performed.

Now we come to another anomaly of power, *viz.*—

Tonic Contraction of the Uterus

Tonic contraction means contraction without relaxation. It is a very serious condition, because it forebodes rupture of the uterus. The patient is in great agony and is exhausted. The uterus is hard and exquisitely tender.

Tonic contraction may affect the whole uterus or only the upper uterine segment. How much of the uterus will be involved depends on the station of the presenting part. (*a*) If the latter be in the lower uterine segment, only the upper uterine segment will be affected, and the rupture, if it takes place, will take place at the junction of the upper and the lower uterine segments. (*b*) If the presenting part be lying in the vagina, the whole uterus will be affected, and the rupture may take place in the posterior vaginal vault.

The rule is somewhat like this. (*i*) The part of the parturient canal accommodating the presenting part is overdistended. (*ii*) The part behind is tonically contracted. (*iii*) The part in front suffers from the effect of pressure; its wall is swollen, hot, dry and excoriated.

Tonic contraction requires prompt sedation by morphine and deep anaesthesia. When the uterus relaxes a little, delivery is effected by the gentlest destructive operation.

Lastly, I wish to say a few words about—

Contraction Ring Dystocia

Contraction ring (better called constriction ring) represents the tonic contraction of a zone of circular fibres of the uterus. It seldom develops in the upper uterine segments. But in the lower uterine segment it may develop anywhere between the site of the retraction ring and the internal os. It is prone to develop over depressions on the body of the foetus. It may also develop in front of the presenting part.

Its etiology is obscure. This much we can say that it is an expression of hyper-irritability of the uterus. When an initially irritable uterus is irritated further by injudicious vaginal manipulations, this condition may develop.

It is an anomaly of both power and passage. It obstructs labour. It is always pathological. Therein, it differs from retraction ring, which, to start with, is always physiological, and is regarded as pathological, only when it is exaggerated.

Pathological retraction ring is the result, and not cause, of obstruction. This ring gradually rises in the abdomen, as the lower uterine segment becomes more and more distended, and is a warning sign of imminent

rupture of the uterus. But a contraction ring remains stationary in position. It is generally accompanied by uterine inertia. So it does not indicate any near risk of rupture of the uterus.

The diagnosis of contraction ring may be absolute or speculative. Absolute diagnosis is made by palpating the ring during internal examination; this is possible in the 2nd and 3rd stages of labour, but not in the 1st.

In the 1st stage of labour, a speculative diagnosis is made from the following features:—

(*i*) the presenting part does not press firmly against the cervix, even during a uterine contraction;

(*ii*) the cervix hangs loose like a curtain;

(*iii*) the presenting part sometimes recedes further away from the cervix during a pain.

A speculative diagnosis is made in the 2nd stage, when one finds that the foetal head is lying loose in the pelvic cavity and not making any advance.

Formation of contraction ring accounts for many cases of failed forces. Inadvertent use of pituitrin in a case of contraction ring spells disaster. The likelihood of the existence of a contraction ring should make one extremely cautious in administering pituitrin in cases where the foetal head is in the mid-cavity.

Treatment of contraction ring has a prophylactic aspect. It is possible to nip evil in the bud by administering sedatives, whenever one notices that the uterus is acting in a colicky manner, and is not relaxing well after a contraction has passed off. These are the cases which are likely to develop contraction ring on further provocation.

Treatment in the 1st stage of labour follows the lines of treatment for primary uterine inertia. Sedatives are given liberally, and glucose is administered intravenously. Such treatment generally suffices.

Treatment in the 2nd stage is different—

(*a*) To start with, all internal manipulations are suspended.

(*b*) Then some antispasmodic drug is administered.

The serviceable medicaments are—

(*i*) injection of morphine and scopalamine or atropine,

(*ii*) injection of adrenalin,

(*iii*) inhalation of amyl nitrite,

(*iv*) deep ether anæsthesia.

(*c*) Finally, a suitable method of operative delivery is to be adopted.

This may mean—

(*i*) application of forceps.

(*ii*) continuous weight traction through the combined cephalotribe and cranioclast,

(*iii*) Ceasarean section with incision of the ring.

Fortunately, few cases require such drastic treatment. Simpler measures succeed, if the condition be recognised early.

DELAYED LABOUR—FAULTS IN THE PASSENGER *

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In every case of delayed labour the three factors of labour, the three Ps of labour, must be considered: (*i*) Power, (*ii*) Passage and (*iii*) Passenger.

It is possible to determine the two factors, *viz.*, passage and passenger but the third is always difficult to gauge before labour. It is the uncertain factor in labour which very often turns the scale in favour or against if there be slight fault in any of the other two. A slight pelvic contraction will allow a normal sized foetus to be born if good contractions are present. Moulding of the head a very important phenomenon is brought about by efficient uterine contraction. During the investigation of a case of delayed labour one must always estimate the power in addition to the determination of the relation between the passage and passenger. I have seen cases which were kept under observation for a possible caesarean section for the small size of the pelvis—deliver without any operative interference as the strong uterine contractions were able to overcome the slight cephalopelvic disproportion.

The following faults in the passenger will cause delay in labour:

(1) Excessive development (2) Abnormal mechanism (3) Abnormal presentation (4) Abnormalities of the foetus (5) Malformation (6) Abnormalities of the secundine.

Excessive Development

Excessive development of the foetus can be due to five causes: (1) Prolongation of pregnancy. (2) Large size of both parents. (3) Advancing age. (4) Multiparity. (5) Diabetes in the mother.

With a normal pelvis, power and presentation no difficulty usually arises if the baby weighs about 9—10 lbs. I have confined a European lady with 12½ lbs. baby and an Indian lady with 11½ lbs. baby, both without any difficulty.

Large babies often cause serious dystocia if the pelvis is contracted or abdominal muscles are weak. Babies grow despite starvation diets. This was proved during World War I. There is no corelation between the maternal gain in weight during pregnancy and the baby's weight at birth.

Treatment—(1) Induction of premature labour if the history of the previous labours suggested excessive size of the foetus.

(2) If there be definite disproportion—caesarean section.

(3) If the disproportion be moderate—trial labour followed by forceps, lower segment caesarean section.

(4) If the baby is dead or the case is infected —craniotomy.

* Read at the Scientific Section of the Silver Jubilee Session of All-India Medical Conference, Calcutta, Dec., 1948.

(5) If the shoulders are causing delay—cleidotomy may be done.

Abnormal Mechanism

The most common abnormal mechanism is the persistent occipito-posterior position. This is due to android and anthropoid pelvis—relaxed pelvic floor as in some multiparas or small foetal head. The condition is diagnosed by the ease with which the limbs are felt all over and the difficulty in palpating the back. The groove between the body and the neck is transverse. The anterior shoulder is far out in the flank. Foetal heart sounds are misleading as very often they are heard best on the side of the limbs as the chest being in front and nearer the abdominal wall due to extension. During labour by vaginal examination one feels the anterior fontanelle easily in the anterior quadrant and the posterior fontanelle is felt in the posterior quadrant. This may be difficult to feel if there be a big caput succadaneum. If in doubt the ear will be a good guide to indicate the position of the occiput. For this the whole hand must be introduced and the free border of the ear made out. I have noted two things which help me in detecting this condition. (1) Premature rupture of membranes—dribbling water in a vertex presentation especially where the back is to the right. (2) the excessive gaping of the vulval opening before the head has come down sufficiently.

Treatment—(1) Postural—the patient is asked to lie on the side on which the limbs lie, a pad and binder may help in some cases. I have used it with good results in my cases. (2) Rest and sedatives, morphine gr. ¼ or Nembutal gr. 3, glucose 50 cc. 25% intravenously, will very often be of great use. One is surprised to find the anterior shoulder rotation taking place after the rest. It must be remembered that nearly nine out of ten cases of this type deliver with the occiput anteriorly. (3) If this fails attempts at manual rotation under anaesthesia should be made. I admit I have not been able to rotate in many of my cases. (4) If this manual rotation fails—forceps may be applied with the occiput posteriorly. A deep episiotomy will be necessary to avoid injury to the rectum and make the forceps application less dangerous to foetus and mother. (5) Lower segment caesarean section may be necessary in an elderly primipara.

Abnormal Presentations

These are:—(1) Transverse presentation. (2) Face presentation especially mentoposterior. (3) Brow presentation. (4) Compound presentation, *e.g.*, head with hand. (5) Some cases of breech presentation—if the baby is big or the pelvis is contracted.

Transverse Presentation—Frequency 1 in 600. Diagnosis—shape of uterus. By palpation the head is felt in one of either iliac fossæ and breech in the opposite flank; vaginal examination—the shoulder acromion or the ribs are felt in place of the usual head or breech.

Transverse presentation must always be changed into head or breech presentation. This presentation should always make us suspect gross cephalopelvic disproportion. In multipara it may occur with a normal pelvis but very lax abdominal wall. Version should not be tried if all the liquor amnii has drained off as this will surely lead to rupture. In such cases decapitation is the treatment of choice. If the child be alive and the pelvis is contracted and no evidence of sepsis be suspected caesarean section will be indicated.

Face Presentation—Frequency 1 in 400-500.

Face presentation is not usually responsible for delay if the chin rotates forwards, the passage and power being normal. Diagnosis is not always easy.

Palpation—the limbs are better felt than the back which is felt concave. The part of the head on the side of the back is felt more prominent. The foetal heart sounds are better heard on the side of the limbs. Vaginal examination will show that the hard smooth head with sutures is absent. Presenting part is soft, irregular, with an opening suggesting face or breech. After rupture of membranes and with the cervix dilated the two malar bones and the chin are felt with an opening—the mouth with the alveolar ridges. The finger in the opening is not covered with meconium—thus excluding breech presentation.

Majority deliver normally and require no special assistance if the presentation is mento-anterior. If the passage is contracted caesarean section is indicated. If the chin is posterior and the head is high in spite of good contractions one of the four methods may be used.

(*i*) Conversion—this is not at all easy as it tends to recur as soon as the hand is withdrawn.

(*ii*) Version and extraction.

(*iii*) Caesarean section.

(*iv*) Craniotomy—forceps should never be tried when the chin has rotated into the hollow of the sacrum.

Brow presentation—Frequency 1 in 1000 labours.

In this the head is midway between flexion and extension. The largest diameter — occipito-mental 13·5 cm. lies at the inlet. A normal sized fœetus cannot be born with this presentation. It is due to pelvic contraction—deformity of the fœtus, tumours of the neck, goiter etc. It may be secondary to face after unsuccessful attempts to convert it to vertex.

Diagnosis is not always easy. When labour does not progress normally in spite of good contractions—vaginal examination shows that the supra-orbital ridges are felt as well as the large anterior fontanelle is felt. X'ray will also help in the diagnosis.

Abdominal palpation—by Pawlik's grip one feels the occiput and sinciput on the same level.

If the presentation is not changed labour may come to a standstill-inertia or the uterus may rupture.

If the pelvis is normal and the case is seen early in labour attempt to change it to vertex or face. If

not version may be done. If this fails—craniotomy—forceps is dangerous. If the pelvis is small caesarean section is the treatment.

Breech presentation—Frequency, 1 in 60.

With a normal sized foetus and normal pelvis breech rarely causes serious delay in labour. But if the pelvis is contracted or the baby is big delay will be caused needing the obstetrician's assistance. The treatment in such cases will depend on the cause. In contracted pelvis breech should be treated by caesarean section. In elderly primipara—as this may be her first and last chance and as prognosis for the foetus is not so good as in head presentation, caesarean section is advisable.

Compound presentation—Two or more foetal parts present together, *e.g.*, head with the hand. Such a complication is not diagnosed till vaginal examination is made. But it could be suspected if with head presentation and normal pelvis—the membranes rupture prematurely and labour does not progress in spite of good uterine contractions. This is usually due to (1) contracted pelvis, (2) faulty axis of the uterus, (3) multiple pregnancy, (4) hydrocephalus, (5) hydramnios. I had one case of this type in my practice some 18 years ago. She was multipara with good obstetric history. She had hydramnios. She came in with history of the bag having ruptured at home. In spite of good contractions and the head at the inlet no progress was observed. Attempts to push the hand past the head failed. Forceps slipped: ultimately craniotomy was done to deliver the child which was of a big size.

Treatment will depend upon the cause. If the pelvis is normal reposition of the prolapsed hand should be attempted. Version is rarely necessary. Caesarean section is indicated in cases of pelvic contraction.

Abnormalities of the Foetus

Abnormalities: (1) Foetal ascites, (2) Overdistended foetal bladder, (3) Hydrops foetalis, (4) Foetal hydrothorax, (5) Congenital cystic kidney, (6) Neoplasms.

These conditions are not common. I have met with two cases of foetal ascites, one case of foetal hydrothorax and one case of hydrops foetalis. I have noticed hydramnios associated with these conditions. The diagnosis was made only when the labour was arrested and on vaginal examination the cause of obstruction was found out. Treatment is by puncturing and aspirating the fluid.

Malformations

Monster is a foetus having a congenital deformity which inteferes its general or local development. Usual varieties are (1) hydrocephalus, (2) Anencephalus, (3) Double monster. I have not met with any of the last variety so far. Monsters are divided into two varieties (1) Single and (2) Double.

Anencephalus—In this the frontal portion and most of the brain are absent. The body is well developed and the shoulders are also broad. Face is conspicuous, eyes are frog like. Hydramnios is geneally present. Other abnormalities, *e.g.*, spina bifida or meningomyelocele may be present. Whenever hydramnios is present X'ray should be taken to exclude anencephalus or spina bifida or other deformities of the feotus.

Palpation does not always help diagnosis. This condition may be suspected if the Pawlik's grip does not give a definite outline of the head in the pelvis or by the uneven feel of the head. X-ray will confirm the diagnosis. The presentation is usually by face. The bulging eyes and absence of the skull as made by a vaginal examination will help the diagnosis. Dystocia is caused by the broad shoulders or by the excessive size of the foetus. I was one day called to see a case of a multipara in the suburbs of Bombay. The labour had come to a standstill—there being no progress in spite of good contractions. The doctor in charge could not make out the presentation. On examination I felt the protruding eyes and the open skull and diagnosed the case as one of anencephalus monster. I tried to apply forceps but they slipped. I succeeded on delivering the head by simply hooking my fingers under the chin and pulling head out, but shoulders being very broad would not move until cleidotomy was done. The total weight of the baby was 11 lbs. The babies are usually dead or die soon after birth.

Hydrocephalus—This is a very common cause of dystocia. Breech presentation is met with in 50% cases. Hydramnios may be associated with hydrocephalus. By palpation one feels the big size of the head which does not enter the brim. Head feels soft. By vaginal examination the fontanelles are felt to be big and bulging. X'ray will show the big outline of the head with wide fontanelles. Sometimes the condition is not suspected till several unsuccessful attempts are made with the forceps which does not properly fit in and slips. Rupture of the uterus has been reported in the literature due to this condition being missed and labour allowed to continue. Two years ago I was called by a doctor who runs a maternity home. He had applied forceps on a multipara woman for delayed labour. He failed to pull the head down as the forceps was every time slipping off. He had struggled at the case for an hour. On examination I found the head half above the brim and half in the pelvic cavity. On vaginal examination I found the fontanelles wide and bulging. I could at once make out the case as one of hydrocephalus. The head was perforated and labour was allowed to terminate naturally. Hydrocephalus should never be left to nature. It must be treated by craniotomy. In breech presentation the after-coming head can be delivered by perforation through the foramen magnum or by passing big sized spinal needle and allowing the spinal fluid to drain off.

I have no experience about *double monsters*—they should be suspected in cases of twins. X'ray examination should be done in all cases of twin pregnancy. Even with X'ray sometimes it is not possible to diag-

nose the condition till late in labour. Fortunately these are very rare.

Abnormalities of the Secundines

Short cord sometimes causes delay in labour. The normal length is about 20 inches. It may be absolutely short or relatively short. Short cord may be suspected if the presenting part descends with each pain but goes back after the pain has passed off, thus leading to delay in labour. Another symptom is pain complained of by the patient at the insertion of the placenta during every pain and appearance of slight bleeding in the second stage; slowing of fœtal heart beats during pain if the cord is relatively short due to loops round the fœtal parts.

Dangers of short cord are: (1) Premature detachment of placenta, (2) inversion of the uterus, (3) rupture of the cord—asphyxia of the baby and (4) dystocia during second stage.

Unfortunately this condition is rarely diagnosed before delivery. If suspected forceps should be applied as soon as the first stage is over as there is danger to the fœtal life. Everything should be ready to treat asphyxia of the baby.

Abnormally tough membranes—Sometimes the membranes are so resistant that they fail to rupture even after the full dilatation of the cervix. After the end of the first stage their presence is a hindrance to normal labour leading to delay in labour or inertia. I have met with such cases. Treatment is to puncture the membranes between pains to avoid risk of prolapse of the cord. Before puncturing one must be sure that they are membranes as otherwise the caput or buttocks may be accidentally injured.

Sometimes the membranes are adherent to the internal os. No bag of water is formed which serves as a cone—thus hindering dilatation of the cervix. This should be treated by passing a finger into the cervix and gently separating them from the cervix around the internal os.

USE OF GELFOAM IN THE ARREST OF HAEMORRHAGE *

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Madras

Prostatectomy operations have all in common three main complications, *viz.*, post-operative haemorrhage, aggravation of cardio-vascular and renal damage and sepsis. Careful preparation, preliminary drainage and medical treatment and the choice of a suitable anæsthetic will in a large measure, minimise untoward sequlæ. But bleeding is not always predictable; its nature and amount vary; it may be primary (at the time of operation), reactionary (occurring a few hours after he comes round from the anæsthetic) or secondary (from separation of sloughs from the prostate bed a week or so after the operation). Primary hæmorrhage is not a formidable feature; it can most efficiently be checked by preliminary injection of Coagulen-Ciba, or gauze packs; reactionary hæmorrhage is often alarming; hot irrigation, and renewal of gauze pack, though often controls bleeding for the time being, introduces a greater element of sepsis from handling the raw area, and the chances of sloughing and secondary hæmorrhage later are increased. Harris' plastic repair, where the bleeding is arrested by sutures, was therefore a great advance on the gauze pack and Pilcher bag. Further all raw surfaces are covered, the greater part of the prostatic urethra reformed and the prostatic cavity obliterated; this secures primary healing without urinary leakage. The procedure requires, however a wide retraction of the bladder walls with the special retractor, to get a visualisation of the prostatic cavity, so that the individual hæmostatic sutures may be placed correctly in the postero-lateral segment of the prostatic rim and the floor of the prostatic area may be reconstructed. This takes far more time, and carries a greater amount of shock; again, the placing of the sutures with the boomerang needle, however carefully it may be guided with the dexterous finger, is not altogether free from a risk of traversing through ragged tissues in close proximity to the rectum; Harris' operation is also not applicable for second stage operation. Hence, this operation has not been more frequently practised than the simple suprapubic Freyer's operation. Millian's retropubic operation is likewise not altogether free from the risk of severe bleeding.

Hendrickson used a modified Foley bag-catheter through which clotting agents can be introduced. Reporting 428 transurethral resections, he says that the average blood loss during the first half hour following operation was 11 c.c. whereas in control cases without local instillation of clotting agents it averaged 38 c.c.

D'Agata (Rome) secures easy mechanical hæmostasis by using the removed prostrate gland itself to tamponade the prostatic bed; this method provides a satisfactory snug fill; it is suggeted that there may be a specific haemostatic substance present in it acting by means of a high level of thrombokinase. He reports 5 successful cases and one failure.

Most methods of securing haemostasis—external compression or use of ligatures, clamps, or medicinal agents such as adrenalin, etc., only help to duplicate nature's attempts at formation of haemostatic fibrin plugs by supplying or aiding the body to produce prothrombin, fibrinogen, platelets and other constituents essential to coagulation of blood.

Thrombin topical—a haemostatic powder obtained from plasma is a natural clotting agent; it reacts with fibrinogen of human blood to form fibrin.

The use of absorbable haemostatic agents in the arrest of haemorrhage was a great advance on previous methods. In neurosurgery, it marked a great epoch; till then it was either electro-coagulation or application of a bit of muscle pressed in. Fibrin thrombin is nature's haemostat. It reacts with fibrinogen of human blood to form fibrin. Oxidised cellulose (cellulosic

* Read at the Scientific Section of the Silver Jubilee Session of All-India Medical Conference, Calcutta, Dec. 1948.

acid) and gelatine sponge were newer therapeutic agents. Fibrin foam prepared from human blood was first used. The principle on which these act, is to hasten the formation of clots and give structural support to the clot. This permits control of haemorrhage of a greater magnitude than that of normal clotting and thus enhances the value of the protective mechanism of the body.

Fibrin foam soaked in thrombin is used for (1) haemorrhage, (2) filler of cavities and (3) as a dressing.

Thrombin in solution: Boyd tried it with success for the control of oozing from the prostatic bed; it was instilled thorough a double ballooned catheter (Baird) after transurethral resection. Later fibrin in a foam with many sponge-like interstices, 'fibrin foam' was used with thrombin (dry powder); pieces of foam 1·2—2 cm. square are immersed in a solution of thrombin (dry powder) in isotonic saline solution and agitated until all the air is driven out and replaced by fluid. The prostate bed is filled with these pieces and pressed in place by gauze pressure; suction is applied. Coagulation takes place in about 5 minutes. The bladder wound is then closed with interrupted stitches round a Depezzer catheter brought out through the upper angle of the wound. No lavage of the bladder is done after operation. Patient is allowed up the next day, and suprapubic catheter removed on the 5th day; the patient voids urine spontaneously in a day or two after this; the foam is insoluble in urine and is passed from the bladder in the form of small slimy bits. The urine is clear in 2-4 days; wound dry and healed in 11 days after this. No secondary bleeding has been reported. Subsequently, in later cases, he used bovine thrombin, in a matrix of gelatine (gelfoam) in place of fibrin foam with the same good result. (Quinby—*New England J. Med.*, **235**:17, 1946.)

MacDonald and Powell (Canada) reported 15 cases treated with gelfoam; Hockel Waller used gelfoam over the bag of a Foley catheter.

Fish used absorbable haemostatic gauze (oxidised cellulose) with most satisfactory results: it is supplied as gauze-like pads and in cotton like form. It effects prompt haemostasis when applied to oozing surfaces.

Absorbable gelatin sponge can be cut into sheets or pledgets of any desired thickness and dimension; it absorbs liquids readily and its tensile strength and other physical properties make it easy to handle without fragmentation in either the wet or dry state. After enucleation of the prostate, the bleeding is controlled by pressure; a block of foam is cut to size, soaked in fresh solution of thrombin, the resultant jelly-like mass is held against the bleeding area by sponge pressure very gently or with the finger; clotting is instantaneous. Pressure is released gently to avoid disturbing the clot.

The availability of these clotting agents should be no excuse for sloppiness in technique, nor a substitute for proper judgment in selecting the time or type of operation. Contamination or presence of infection minimises the amount of haemostatic agent available. The sterile packet when once opened, has to be resterilised by dry air-heating for 2 hours at 290°F. if any portion is left unused, before it can be used again.

Case Reports

The following four cases of suprapubic prostatectomy will illustrate the relative merits of the different methods of arresting hæmorrhage.

Case 1.—EAW aged 64—Preliminary suprapubic cystotomy in March, 1945; indwelling catheter drainage; considered unsuitable for prostatectomy at the time and sent back. Returned in Nov. 45 with pain in the suprapubic area and blockage of catheter with stones; on admission, B.P. 150/115, blood urea 41 mg per cent., Hb 75 per cent., urine sp. gr. 1004, albumin a trace, urea clearance 49·2, heart second sound accentuated and boundaries enlarged. 20-11-45—Suprapubic wound enlarged, 7 small stones (½ cm. in diameter) removed and bladder drainage continued. Condition improved; 4-12-45—Prostatectomy performed under low spinal. Very adherent fibrous prostate removed with great difficulty. Post-operative bleeding troublesome. Irrigation and roller gauze packing was done. Urine continued to be blood-stained for 2 days and patient died on 5-12-1945 from circulatory collapse.

Case 2—Mr. J. C., age 57-A.I.-Male—admitted 31-3-46 for acute retention of urine of 3 days duration. Emergency suprapubic cystotomy was done at night and bladder drained. B.P.—200/110. Blood-urea—100 mg. per cent. Patient overweight. Improved with bladder-drainage. 2-4-46—B.P. 150/105 and blood urea 41 mg. per cent. 30-5-46—Suprapubic prostatectomy—Harris' operation. Bleeding controlled by two lateral haemostatic sutures. P.O. bleeding continued for 3 days. Patient developed femoral thrombosis, and had a stormy convalescence. He was discharged cured.

Case 3—R.H.M., aged 55 admitted for retention of urine. B.P. 100/88. Blood urea 25 mgms. per cent. Catheter drainage on 5-7-48. After preliminary vasoligation total prostatectomy by the suprapubic route was done. Removed a big malignant prostate with the attached seminal vesicle at the bottom-most portion on the right posterior aspect adherent. Post-operative bleeding controlled by packing the bed with a finger glove filled with vaseline gauze. P.O. bleeding continued for 2 days. Voluntary micturition deferred for 15 days. Suprapubic sinus persisted. Put on stilbestrol treatment. Discharged cured on 23-8-48.

Case 4:—V. R. aged 60 admitted for frequency of micturition on 19-9-48. Rectal examination—huge nodular prostate. Bladder distended. B.P. 154/98, blood urea 47 mgms. per cent. Suprapubic prostatectomy. Removed a malignant prostate. Bleeding controlled by gelfoam. P.O. *urine clear on the next day.* Developed balanitis and a periurethral abscess from the 10th day. Voluntary micturition deferred. Bladder washes given. Put on penicillin therapy and subsequently on stilbestrol treatment.

Discharged relieved on 26-11-48 with a persistent suprapubic sinus.

Conclusion

The use of gelfoam promises to secure a blood loss of negligible amount and smoother convalescence.

INFANTILE HEPATIC CIRRHOSIS*

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One of the most tragic diseases affecting infants and young children throughout this country and taking a heavy toll of life is infantile cirrhosis of the liver. Despite its universality, only a few articles have appeared in various Indian medical journals on this important subject—less than a dozen in as many years.

AETIOLOGY

Mukerji (1927), Narain Murti and Tirumurti (1939), Prabhu (1940), Chaudhuri (1944), Sundareson (1947) and Balasundaram (1947) give detailed descriptions.

Geographical—According to them, most of the cases have been reported from the Bengal and the Madras Presidencies. This is not correct so far as the U.P. is concerned, where it is extremely common, and my talks with colleagues from the Punjab, Bihar, Orissa, Assam, C.P., Bombay, Hyderabad and other States reveal its widespread occurrence and its tragic prognosis. Lack of statistical data from the Municipal death returns is greatly regretted and this defect should be corrected without delay. The disease is apparently more common in the urban areas.

It is noteworthy that some cases have been reported from other countries of the world—Sundareson (1948).

Religion—One of the very queer features noted by all Indian workers is its predominance amongst Hindus and I can bear this out from my limited experience. I have seen cases amongst Muslims and Indian Christians though their number is proportionately much smaller. Narain Murti and Tirumurti note the special perdilection amongst Brahmins though in my experience all castes are indiscriminately affected, Brahmins, Kshattriyas, Khattris, Vaisyas etc., with special frequency amongst the latter two communities.

Heredity and familial incidence—Many workers have noted a definite familial incidence and every one has come across certain unfortunate mothers whose successive children die of this disease. Some have postulated a special familial susceptibility of the liver parenchyma and others have tried to incriminate some factor in the mother's milk, but without any scientific basis.

Age—The most frequent incidence is between six months to three years. The earliest case seen by me was a child aged six months and the oldest a boy aged 5 years.

Sex—All agree that the incidence is much greater amongst male children, but we have no explanation to offer for this curious predilection.

Social status—Various workers claim that it is much more frequent amongst the well-to-do and the middle classes than amongst the poor and this seems to be undoubtedly so, though many cases come from the poor also.

Diet—The individual mother's milk has often been blamed (Tirumurti), and there is the often-quoted case of a man with two wives, the children of one of whom always died of this disease, whereas those of the other wife were apparently free from it. Some blame the use of fresh milk or the tinned stuff. Others blame use of a rice diet, particularly of the polished variety (Sundareson). Excessively prolonged breast feeding, over-feeding, excess of fatty and carbohydrate food have also been blamed at various times. The experimental work of Sundareson (1947) is particularly instructive. He fed litters of rats on controlled diet and found that, in the progeny of those whose diets were deficient in yeast and meat, the liver showed extensive necrosis and hydropic degeneration. Balsundaram (1947) thinks that the habitual use of castor oil to the infant may be a causal factor, by damaging the liver parenchyma.

Infection—Frequent attacks of fever and of leucocytosis have induced some workers to postulate the idea of a specific infective factor, but no particular organism has so far been incriminated.

PATHOGENESIS

Many postmortem reports have been published notably by Narain Murti and Tirumurti (1939) and Rao (quoted by Prabhu 1940) and Sundareson (1948) and I will only mention the more important findings. On naked eye examination, the liver is grossly enlarged and is hard and nodular and often bile-stained. In the last stages shrinking of the liver is observed, the cells are smaller inside and there is complete disintegration of the normal structure with extensive fibrosis—inter-lobar, intra-lobar, and even inter-cellular, with obliteration of bile canaliculi and the portal venules, and multifocal attempts at regeneration of the liver cells. Rao thinks that it is a variety of subacute toxic cirrhosis while Sundareson (1948) finds it identical with the cirrhosis of infants in Edinburgh. The resemblance to adult cirrhosis is marked.

In this connection, it is interesting to note the changing views as regards the aetiology of the adult cirrhosis of the liver of the Western countries, where alcohol was regarded as the prime causal agent. Subsequently it came to be realised that the resultant chronic gastritis with its attendant poor appetite and hence dietetic deficiency was the prime causal factor and not alcohol, because cirrhosis was produced in many instances where alcohol is never taken for example in this country, where a modified type of cirrohosis is quite common in people who have never touched alcohol. The modern view regarding the pathogenesis of the adult cirrhosis is a combination of the toxic factor—which may be derived from various sources, for example toxins of bacteria and viruses, various chemical poisons, both organic and inorganic, and endogenous toxins—acting along with dietetic deficiency of high class amino-acids particularly choline, methionine and cystine.

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It has been further claimed that, in the presence of the above amino-acids, liver damage may be prevented or at least lessened in extent, and regeneration proceeds much more rapidly, and conversely that in their absence, the liver cells are much more susceptible to damage from all sorts of poisons circulating in the blood—Opie (1913), Graham (1915), Davis and Whipple (1919), Minot and Cutler (1928), Gyorgy and Goldblatt (1939), Barret and Maclean (1940), Dube (1945), and Sundareson (1947).

Calcium gluconate, vitamin C and glucose are also supposed to help in preventing liver damage.

As the macroscopic and the microscopic appearances of the liver in the Indian infantile variety are so closely similar to those of the adult variety, that one can safely presume a similar combination of the toxic, infective and protein deficiency factors producing the disease. The poor quality of milk due to maternal ill-health, specially when breast feeding is prolonged beyond 8 to 9 months with little extra food (many infants, unless firmly handled, refuse to leave the breast), the rickets which is so common here and which always reduces resistance to infection, the very difficult teething period with its attendant diarrhoeas and the consequent poor feeding, the bad habit of stopping all food in all types of fever, and specially the lack of good class proteins from the diets of the predominantly vegetarian Hindus, tend to reduce the resisting capacity of the liver cells which are exposed to the poisons of so many infantile infections, particularly infective diarrhœas, bacillary dysentery, small-pox, measles, and whooping cough, the various broncho-pneumonias and particularly septic nasophyrngeal conditions, with the stoppage of all food in most of these conditions, can be presumed to produce multiple foci of necrosis in the liver. The enlargement of the liver in these cases is due to irregular attempts at regeneration as have been proved in cases of infective hepatitis by needle biopsy (Sheila Sharlock, 1947 and Witts, 1947).

As the child becomes ill, greater dietetic restrictions are enforced, and a vicious circle started. Later on, due to portal obstruction, ascites and jaundice supervene, and cholaemia or any terminal infection ends the tragic scene.

Symptoms and Signs

In the great majority, the disease runs an insidious course, lasting 12 to 24 months but occasionally "malignant" cases are observed, in which the disease runs its fatal course in one or two months.

Case Report—A doctor's child aged two and half years, seen by me in Sept. 1942 for some ordinary ailment; nothing abnormal found and liver just palpable and normal to feel (normally, the liver is just palpable upto the age of 3 years or so). No previous "liverish" history, and no relevant family history. Several elder brothers healthy. Three weeks later he developed high fever with deep jaundice and enlarged liver—four fingers, spleen just palpable. Despite all treatment, the child expired within six weeks.

I feel that cases of this type are probably instances of severe infective hepatitis.

Chaudhuri (1944) has aptly described three stages of the disease:—

(*i*) early stage,
(*ii*) moderately advanced stage,
(*iii*) late (terminal) stage.

(a) *Early stage*—It is important to recognise the condition in this stage, because, if properly handled, recovery is quick and certain. The usual symptoms are a child in "off colour", not so bright as usual, irritable and restless, and the mothers complain that the child's body feels warm (though the thermometer may not record fever), constipation or diarrhoea, and the occasional passage of pale clay-coloured stools. The appetite is usually poor or capricious, or at times voracious. On examination the only positive findings are some degree of anæmia, and the liver is somewhat enlarged and firm to feel. This firm feeling is, I think, the crucial diagnostic point. The spleen is not palpable.

An anatomical point often forgoten is that the liver in children is palpable upto the age of three and this has given rise to what I can only call "liverophobia". Frequently a child is brought to me because the mother has been told by some doctor that the liver is enlarged and so the whole family gets into a state of panic. I have records of nearly 2 dozen such cases, whom I have followed up for 6 months or a year and nothing untoward has happened.

Another fallacy to keep in mind is that the liver often gets temporarily enlarged with any passing infection and soon goes back to normal.

Blood examination in such cases usually reveals a mild degree of anæmia, while the white count is usually normal.

Case Report—Baby M., aged 9 months, first child, breast-fed, had whooping cough followed by bronchpneumonia, low fever persisted for nearly a month. Mother noticed failure to gain weight, weakness and occasional pale stools, liver 2½ fingers and firm to feel, no spleen, basal congestion both lungs. Rapidly improved under appropriate treatment.

(b) *Intermediate stage*—Symptoms and signs are very clear-cut by now. Increasing weakness and pallor, frequent bouts of fevers ranging between 100° to 102°F. and lasting one or two weeks, distended abdomen, passage of clay coloured stools, are noticed. Appetite is either very poor or capricious or voracious. The child is often extremely irritable, but at times he is very docile, lifts up his *Kurta* to enable the doctor to examine the abdomen. On examination the liver is usually found to be enlarged 4 to 5 fingers below the costal margin, spleen 1 to 2 fingers, thin veins visible on the abdominal wall, fair degree of anæmia and moderate leucocytosis. Vanden Bergh test shows biphasic response, while the urine does not show the presence of bile at this stage.

Chaudhuri (1944) reports that levulose tolerance tests show liver dysfunction.

Case Reports—Baby Bhawan Das, age 2½ years when first seen 2½ years ago, son of Marwari parents, three brothers died of "liver" disease with a typical history given above. The liver is enlarged 4 fingers below costal margin and firm, spleen 2 fingers; secondary anæmia; chronic nasopharyngitis. Treatment continued for nearly one year. Now under

observation for nearly two years and is normal in every respect, the liver and the spleen have gone back to normal positions.

Baby Jwala, aged 2 years, when seen 1 year ago gave a typical family history and personal history. The liver is enlarged 5 fingers and spleen 3 fingers. General findings as above. Treated for 9 months, the liver and the spleen not palpable now. General condition excellent.

Baby Sinha, aged 2 years 3 months when seen 1½ years ago. Elder brother seen by me four years ago in the typical advanced stage followed by death. This child's liver is enlarged four fingers below the costal margin and firm; the spleen, two fingers. Treatment continued for one year; now perfectly all right, the liver and spleen not palpable.

(c) *The Advanced stage*—This stage is only too frequently seen, complete anorexia, irregular clay-coloured stools, remittent fever, emaciation often masked by general anasarca and ascites, increasing jaundice, varicose abdominal veins, urine loaded with bile, liver getting harder and smaller, spleen getting larger, severe anæmia and petechial hæmorrhages culminating in cholaemia or some terminal infection.

Diagnosis

In a well marked case, the diagnosis is self evident. Prabhu's (1940) six points to my mind, indicate a fairly advanced case and our attempt should be to diagnose cases at a much earlier stage.

Decreasing weight, low fever, pallor, capricious appetite, occasional clay coloured stools are all pointers and, if the liver edge is firm, then one should unhesitatingly treat a case on the lines to be laid down below. On the other hand one must not forget the normal anatomical lower boundary of the liver in infants; such livers are never firm to feel.

Other possibilities to be kept in mind are, congenital syphilis, infantile kala-azar, chronic malaria, infective hepatitis, rickets.

Prognosis

The prognosis has been universally regarded as extremely grave and very high mortality figures are quoted. Probhu thinks that if a child survive beyond the age of 3 years, all the danger is past. This has not been my experience and I have seen several cases dying at four or even five years of age.

Treatment

For a very long time, our treatment for this disease has been absolutely nil. Every medical man has his own favourite prescription which usually included some oral mercurial preparation, and liver extract injections. Later on when vitamins came into their own, they were also included as a whole.

In 1940, Prabhu advocated the use of zinc oxide grain ½ to 1, thrice a day orally and claimed a good result.

Chaudhuri (1944) also wrote well of it, but most of the other works failed to confirm these claims.

Balasundaram (1947) has reported exceedingly good result with the use of cholin dihydrogen citrate tablets orally claiming cure in the most advanced cases with ascites and jaundice!

Sundareson (1948) writes of the good results of oral administration of nucleic acid to experimental rats in preventing liver damage by carbon tetrachloride.

I suggest the following for the treatment:—

1. Control of any infective process with appropriate measures—infective diarrhœa and chronic dysentery with sulphaguanidine, whooping cough with vaccine, septic throat with sulphanilamide, etc.

2. Control of the anæmia with an acid iron mixture with calcium gluconate.

3. Proteolysed casein and proteolysed liver orally to supply high class amino acids.

4. Vitamins A, B complex, C and D orally—usually some composite preparation, as multiple vitamin deficiencies are present.

5. Bile salts to stimulate the flow of bile—numbers 3 and 4 and 5 are usually given together along with some sugar or candy to make it palatable to the infant.

6. Diet—milk twice or thrice a day, khichri twice a day along with some fruits given at fixed intervals.

The number of cases so far treated by me along these lines is very small—21 in number.

I may add that an advanced case with jaundice and ascites is a hopeless proposition. In them, any treatment is bound to fail, but in the intermediate stage cases, the results appear to be excellent.

I recommend the above scheme particularly from the prophylactic points of view in families where such cases have been reported.

Summary and Conclusion

A brief summary of the literature is given.

The various aetiological factors are discussed and the special importance of infections and intoxications damaging the liver in the presence of gross deficiency of high class proteins is stressed. The similarity with adult cirrhosis is mentioned.

The symptoms and signs are described in detail, stressing particularly the earlier symptoms which would help in the early diagnosis of this condition; a few illustrative cases are reported.

The differential diagnosis is discussed.

The treatment is described in detail and the preventive aspect is stressed.

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Rh-Hr GROUP, ITS GENETICS AND NOMENCLATURE

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There were much controversies over the correctness of 'multiple gene theory' of Wiener and 'composite gene theory' of Fisher and Race, and superiority and simplicity of American and English nomenclature of Rh variants. The correct nomenclature in this case should be according to the genetical conception—so the genetical theory should be considered first.

According to Wiener the Rh genes are multiple allelomorphic (6 in number) giving rise to 8 phenotypes, *e.g.*

Rh_0, Rh′, Rh_0′ or Rh_1, Rh″, Rh_0″ or Rh_2, $Rh_{1\text{-}2}$ or Rh_1Rh_2, Rh′″ or Rh′Rh″ and rh.

(rh = Recessive character—absence of antigen. Rh = One or the other dominant character = presense of one or the other antigen or antigens).

This means each chromosome contains only one out of these 4 elementary (*e.g.*, Rh_0, Rh′, Rh″, rh) and 4 compound (*e.g.*, Rh_0′, Rh_0″, $Rh_{1\text{-}2}$, Rh′″) genes.

This conception is very simple and was quite comprehensive before the discovery of Hr and its variants and their linkage with Rh and its variants.

Phenotypically,

Rh_0 means absence of Hr_0 and presence of Hr′ & Hr″
Rh′ „ „ Hr″ „ Hr_0 & Hr″
Rh″ „ „ Hr″ „ Hr_0 & Hr′

Or

in other words genetically Rh_0-Hr_0, Rh′-Hr′ and Rh″-Hr″ are the 3 pair of contrasting characters,

i.e. Rh_0 is the allele of Hr_0
Rh′ do. Hr′
Rh″ do. Hr″.

This is the basis of Fisher and Race's composite gene theory. According to this theory each chromosome contains either one, two or all the three Rh genes together with the noncontrasting Hr genes or gene so that there is no true recessive gene if Rh and Hr are considered together.

The compatible genes are

$Rh_0Hr'Hr''$, $Rh'Hr_0Hr'$,
$Rh_0Rh'Hr''$, $Rh'Rh''Hr_0$,
$Rh_0Rh''Hr'$, $Rh''Hr_0Hr'$,
$Rh_0Rh'Rh''$, and $Hr_0Hr'Hr''$ and

corresponds to 8 phenotypes so that the distinction between genotypes and phenotypes disappears. This is due to the linkage of Hr with Rh so that the so-called recessive rh gene is detected by the linked dominant Hr gene and so the genotypes of a person can be determined serologically if all the six types of anti Rh and anti Hr sera are available.

This theory comprises both Rh and Hr.

The difference between the genetical conceptions of $Rh_{1\text{-}2}$rh and Rh_1Rh_2 or Rh′″rh and Rh′Rh″ will be more easy to understand.

Nomenclature

It has been seen that a person containing only Rh_0 antigen in RBC will also have Hr′ and Hr″, *i.e.*, his pheno-type expressed fully is $Rh_0Hr'Hr''$ or simply Rh_0.

Similarly a person containing only Rh′ antigen in RBC is phenotypically $Rh'Hr_0Hr''$ or simply Rh′.

A person containing only Rh_0 and Rh′ antigens is phenotypically $Rh_0Rh'Hr''$ or simply Rh_0Rh' or Rh_0′ of Rh_1 and so on

Rh antigens	*Full name*	*Short name*
Rh_0	$Rh_0Hr'Hr''$	Rh_0
Rh′	$Rh'Hr_0Hr''$	Rh′
Rh″	$Rh''Hr_0Hr'$	Rh″
Rh_0 & Rh′	$Rh_0Rh'Hr''$	Rh_0′ or Rh_1
Rh_0 & Rh″	$Rh_0Rh''Rh'$	Rh_0″ or Rh_2
Rh_0 & Rh′ & Rh″	$Rh_0Rh'Rh''$	Rh_1Rh_2 of Wiener or $Rh_{1\text{-}2}$ or better Rhz of Taylor & Race
Rh′ & Rh″	$Rh'Rh''Hr_0$	Rh′Rh″ of Wiener or Rh′ ″ or better Rhy of Taylor & Race
nil	$Hr_0Hr'Hr''$	rh

It may be seen that the short names express fully the meaning of the full names, *i.e.*, give the full idea of various antigens contained in them. So the full name has got no advantage over the short one, rather it has the disadvantage of being too cumbrous.

The same argument holds good regarding the CDE nomenclature of Race which is nothing but the full names expressed in alphabets,

C being same as Rh′
D „ Rh_0
E „ Rh″
c „ Hr′
d „ Hr_0
and e „ Hr″

This has another disadvantage in that these nomenclatures cannot be expressed fully by spoken words. Written words are necessary.

Moreover this nomenclature ignores the two letters 'Rh' which is, by now, firmly fixed in the minds of workers and is associated with its discovery.

To explain the genetical theory only by CcDE as by Khanolkar and others is only incomplete.

To say as by Hallwright and quoted by Greval, that Hr occurs only in 4 types of Rh, *e.g.*, rh′, Rh″, Rh_0 and Rh_2 and not in the other 4 types is rather incorrect.

In conclusion it may be said that (1) Fisher's composite gene theory is the correct one (as proved by Hr linkage) if Rh and Hr are taken together and (2) Wiener's short names replaced in part by Rhy and Rhz of Taylor & Race is the most suitable nomenclature. Most of the controversies in this connection was quite unnecessary. There is no point in making the genetics too obscure as by Fisher and Race as also there is no point in making a distinction, as by Wiener, between Rh type and Rh sub-types which only include some of Hr variants and only expresses the genotypes in some cases.

EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS*

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Dhulia

For early diagnosis of tuberculosis the doctor and patient must meet. In practice, a doctor must wait, until the patient comes to him, and it is only with the arrival of symptoms, and many times not even then that the patient will seek medical advice.

Among the early warnings, often ignored are: (1) cough of more than a month's duration, (2) persistent indigestion, (3) nausea or actual sickness with meals, (4) unnatural lassitude, (5) uncomfortable flushing in the afternoon, (6) fistula in ano and (7) amenorrhœa. These are undoubted warnings, in past and present histories of patients, which nature gives, and remain ignored and uninvestigated. To diagnose only on the discovery of tubercle bacillus in sputum, is to wait for the late sign of the ulceration of the lesion in the bronchus, and to wait till added sounds are heard, is to diagnose a case when a third of the lung is already involved. These sounds are not heard until the caseous contents break down and discharge into the bronchioles, which means, that fibrosis and plastic pleurisy are developing, and the patient may already be past the best state for the simple methods of collapse therapy. Long before this occurs, the usual initial broncho-pneumonia gives two definite physical signs (1) lack of movement and (2) evidence of mediastinal shift. The loss of movement, on the affected side is far beyond its extent and the base lags behind that of opposite side. While the stethoscopic signs of fibrosis and x-ray findings of tracheal and mediastinal shift are absent, the patient with a unilateral lesion, shows tension at the origin of the sterno-mastoid at the inner end of the clavicle.

When sounds do appear they are for considerable time slight in extent and heard only in early hours of the morning. The mucus is coughed up or absorbed before evening; unless patient is seen early in the morning, the sounds may not be detected. In their quality they are bronchitic, in fine sibile, and occasional rhonchi. These are to be differentiated from simple bronchitis and the points are: (1) These are unilateral and seldom heard at the base; (2) the sounds get more insistent with the depth of inspiration. The sounds of simple bronchitis, are more evident in the first half of the inspiration, and not in the later half. Unfortunately in our country when we make an x-ray examination, the disease has progressed to a late stage in almost every case and there are signs of fibrosis, pleural thickening and signs of cavitation. This fibrosis is heard as fine crepitation, pleural thickening is heard in a burst of fine crepitations, and cavity can be discovered by listening to whispering pectoriloquy, and metallic sounds are heard in the last half of inspiration. The investigation by x-ray has now much advanced. It is now possible to take a clear picture—while correlation of pathological processes and their physical signs with corresponding shadows on the film, has made interpretation more exact than before. It is always desirable that screening and film examination, should be carried out by an experienced radiologist and chest physician.

Estimation of the sedimentation rate of red blood cells may aid diagnosis. A fall beyond 10 per cent is suspicious and requires investigation. This test is not very sure as other causes also affect the rate; on the other hand many cases with positive sputums show a fall within normal limits. An exercise test on pulse or temperature will help. A case of active disease will often fail to return to a pulse rate below 90 in five minutes, or a normal temperature of 98°F., in half an hour, following a brisk walk for twenty minutes.

Among the x-ray findings on the screen lagging of the diaphragm and loss of translucency on the affected side are early findings: on the film, the first variation from normal lung shadows takes one or two main forms in the early stages of disease, according to the type of lesion. The proliferative and fibrocaseous type usually presents a rounded area of loss of translucency, in the inner or outer third of the subclavicular region. This loss of translucency is fairly even, though it tends to be densest in the centre. In cases where it has broken into cavity formation, it shows a well defined annular shadow often with a fluid level. In an exudative type the shadow has edges which are woolly, with areas of transparent lung in between.

From the description given above, it is evident that changes introduced on an x-ray film, by early pathological changes of a tuberculous lung, have something quite definite, which at its lowest value is an indication of something abnormal calling for investigation. In other words if we want to prevent the spread of tuberculosis at our place the doctors will have to seek the patient. Certain selected groups of supposedly healthy subjects, should be advised to undergo a routine radiography test. New apparatus for miniature radiography is available whereby there is produced on a small film, a reduced camera photograph, of the full image, and this is less costly and faster. This should be done at every good hospital, where there is a radiologist and this mass radiography, must be within the means of an average Indian.

Phthisis can develop from various factors, inherent in ourselves, our modern social system, our ignorance and our helplessness in being able to do what we must for our people. Pulmonary T.B. develops in the rich as well as in the poor, lawyer and the mill worker, the literate and the illiterate. Poverty may be an important factor, because it brings insufficient food, clothing and living conditions, but to my mind it appears that insanitary surroundings and ignorance of simple rules of hygiene, are major causes of increase of this disease in our country. We are sufferers of foul air, dust and overcrowding. Congestion and dusty streets are a direct result of machine age; but attempt to deal with this problem have to be done, and unless, we are able to achieve this, with the help of our borough municipalities, all attempts to check the onslaught of this disease will be fruitless.

* Read at a clinical meeting of Dhulia branch of the I.M.A.

SPECIAL ARTICLES

I

VENEREAL DISEASE IN INDUSTRY*

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It is a common thing in the post-war period inspite of the new birth of independence of our country that the economists think of rationalisation of industries. But rationalisation is not possible when the efficiency of the labourers is arrested under the pangs of innumerable miseries and diseases. The philosophers will think of miseries but we the medical men must give a solution to the problem of disease in the industry and help the development of our national wealth.

Among the preventable diseases there is one group which is widely disseminated in all classes and communities, of all countries in the world, attains enormous proportions during war, and unlike other communicable diseases, has personal, domestic, social and economic reflection—venereal diseases.

These diseases are more prevalent in cities than rural areas. It is well known that these diseases are more common among industrial labourers than any other group of civilians in India. It may be due to their peculiar circumstances. In this paper I shall try to give you an idea of the prevalence of venereal diseases among industrial personnel, and its economic aspect.

Industrial personnel can be grouped into two, the upper grade and the lower grade. The upper grade consists of officers of industrial concerns, and the lower grade of other labourers engaged in industry.

The upper grade are better educated, better paid, and so of a different social standing. Their domestic life is often normal and they have facilities for healthy recreations. Therefore the incidence of venereal diseases among them is ordinarily less.

On the other hand the lower grade are poorly paid, and have very little education—most of them have no education whatsoever. They are of a very low social order. Their standard of life is low and have very little facilities for healthy recreation. The only recreation—if we may call it such—is often a drinking bout with all its consequent evils. They often live away from their families and have no orderly family life. Their housing condition is far from what it should be. They are very often thrown among undesirables who corrupt their morals and waste their money. These lacking in education and a sense of respectability are often influenced by the vicious examples of their comrades. Many who would be physically and morally sound if they had remained in their village homes, are ruined in the industrial areas. From my experience as a Medical Officer of a number of firms, I can say that the incidence of venereal diseases is high among the lower grade industrial personnel. In India no statistics are available as to the incidence of venereal diseases among industrial workers. The Industrial Health Survey Work which has been taken up by the Department of Industrial Medicine of the All India Institute of Hygiene and Public Health, Calcutta, I hope will make us realise the enormity of these diseases in industry. Of the 300 blood samples collected by me from male and female labourers of Luxmi Jute Mill, examined by the department of Industrial Hygiene of the All India Institute of Hygiene and Public Health 17·5 per cent showed venereal infection.

The West Bengal Anti-venereal Disease Campaign Report for 1947 which has been published shows the total attendance in all the clinics during the year to be 1,76,043.

Of the total number of V.D. patients attended to during the year, only 20,528 disclosed their profession as will be seen from the following analysis given in the report:—businessmen and profession—5,380; clerks, shop assistants, etc.—3,321; students—1,358; labourers —8,331; domestic servants and peons—2,135. From the above figures it is evident that 40·5 per cent of the V.D. cases are labourers.

These patients had been treated in different V.D. Clinics of Bengal. These figures do not show the exact number that had been secretly treated or treated by homœopathic and Ayurvedic physicians or by the numerous quacks abounding in this country. Then again due to the nature of this disease and the lack of information many more may have had no treatment at all.

The majority of the people in Calcutta and suburbs are connected with industry in one way or other. Hence we may safely conclude that the majority of the V.D. patients are from the industries. Therefore it should have attracted the attention of the ministers of industry and labour long ago. Any programme for the welfare of the labour and industry must sincerely face facts as they are. The welfare programme should include an 'Anti-V.D. Drive'. We can do nothing more than deplore the lack of anti-V.D. legislation in India. It is the duty of those medical men who are in the legislatures. The Indian Medical Association should educate the legislature on the importance of anti-V.D. legislation in combating venereal diseases.

The economic results of these diseases are so great that they affect not only the individual and his family but the nation also in many ways.

They can be summed up as follows:—

1. Impaired efficiency of workers ill but not absent.
2. Loss of time and wages due to absenteeism.
3. Idle machines due to absenteeism.
4. Cost of labour turn-over due to prolonged absenteeism.
5. Compensation cost directly or indirectly due to venereal diseases.
6. Hospitalization costs due to these diseases and their complications.
7. Taxes for institutions caring for late results of syphilis.

* Read at the Scientific Section of the Silver Jubilee Session of All-India Medical Conference held at Calcutta, Dec. 1948.

8. Cost of illness and other disturbances in the family of infected workers.

A labourer though suffering from venereal diseases may appear healthy and some of them do not feel sick at all. They go to the factory or mill as was their wont even though they may be of extreme danger to others who come in contact with them. Some of them even though they feel sick go to work as they are afraid of losing their pay. Such a labourer is not his own self, and his efficiency in his work can only be the lowest. He may have slight temperature and headache, there may be penile lesions or the burning sensation or a secondary rash. He is really ill but he does not want to admit it. He may have exposed himself to infection, he does not know the facts about V.D. and so may be living in a fool's paradise without any idea of infection.

Rheumatism, arthritis, neurosis, insanity, paralysis, heart trouble can all be caused by V.D. Persons suffering from these can often be found in factories, though they are sub-acute cases. These people are not merely inefficient but not quite fit for work. Their output can never be the same as that of normal labourers. But they get the same pay meaning a loss to industry and a fall in national income. Furthermore the presence of V.D. victims in factories and mills constitute another disaster. These labourers come in close contact with others and knowing their ways and manners and lack of cleanliness we can assume that they spread this disease among their comrades. This decreases the total efficiency of the labourers of that factory or mill.

The labourers who are infected and are under treatment very often will have to stay away from their work on account of the infectious state of the disease. During this time several man-hours are lost to the industry. The labourer besides losing his wages has to meet the expenses of treatment. In this way there is a double loss, loss to industry and loss to the labourer.

Then there is the cost of compensation for accidents. There is reason to believe that a good number of accidents are caused by V. D. Neurosyphilis and cardiovascular syphilis are the causes of many accidents. A sudden nervous breakdown of a man operating a machine exposes many other labourers to danger. The insurance company will have to pay compensation for the accident—loss of life, injuries or hospitalisation expenses.

Heart diseases are not uncommon in factories. Most of them suffer from cardiovascular syphilis. The labourers always blame the hard work and conditions of labour as a cause of their ill health. If anything happens to them in the factory the management will have to pay compensation. Thus the industry is made to pay for the ignorance of its labourers which ultimately affects the national income.

Then there is the cost of hospitalization met by the nation through the several charitable hospitals. We are all paying for these institutions. Due to gonorrhoea the labourer may become blind, or due to syphilis he may become insane or paralysed. There may be complications of one or other of these diseases which require prolonged hospitalization, and even after discharge perioidc examinations, blood tests, etc. will be required. All these entail expenses which amount to an economic loss to the nation. There are several charitable institutions in this country both private and public, caring for the insane, the blind, the paralytic, etc. If we could only know the facts, most of them are victims of V.D. Who supports these institutions? The public through donations and the Government through grants and direct management. It is the nation that pays for the upkeep of these institutions. This certainly is an economic loss. But we do not often look at it in that spirit, because of the sympathy we have for the poor victims.

Again if we pay attention to the family of the infected labourers we see indeed a very sad picture. The guilty husband infects the innocent wife. Through lack of information and sanitation the children may also be affected. Any children born after the infection are sure to inherit the disease if the mother is not treated. The child may be born blind, or may not be born at all—there may be a miscarriage. Even when it is not apparently afflicted the disease may be lying dormant in the system which develops later on. The whole system of the child is often involved. Many of the freaks of nature can be considered as the result of venereal diseases of the parents. Such an ignorant labourer often reduces his family to misery even to the third generation.

Taking the above facts into consideration—I think that an anti-V.D. drive in the industrial areas of India is absolutely essential. The sooner we begin the better it will be. We must also include all the big towns of our country in our programme, regardless of their industrial importance.

For a successful anti-V.D. drive it is essential that we must know the real social backgrounds of our labour population and then only we can expect to strike at the root of evils of V.D. With that end in view—I am of opinion that immediately a National Institute of Social Hygiene should be established whose activity should include the study of this aspect of the problem so that the knowledge gathered thus can be utilised by the different anti-V.D. centres. The task of this institution should be to furnish educative materials about the nature of venereal diseases—how it is contracted, how it can be avoided, once infected how it can be cured. To be utilised by another set of associate organisations, to be termed 'Information Bureaus' attached to all the V.D. Clinics functioning or would be functioning in the country. The task of these organisations should be to disseminate the knowledge of V.D. and sex hygiene among the ignorant mass. Mere verbal education or rather verbal instruction will be of little avail. The majority of our labourers are ignorant, and so are not able to under-

stand or retain what they understand, for a long time. Therefore we have to resort to other means of instruction namely visual instruction. This can be done by films, photographs, slides, or by drawings by able artists. The army used these means in the war to instruct the armed forces. Perhaps these films are available from the Government. The Public Health & Social Hygiene department of the U.S.A. have a wide course of educational programme which it is carrying out at present. The Public Health Department of our Government should pay more attention to health education.

Another important and vital aspect which requires our immediate attention is the contact tracing, and the compulsory treatment of the infecting person. When this is backed by legislation and provided for by free V. D. clinics, there is every chance of success in bringing down the rate of incidence. This method is in force in the U.K. and U.S.A.

Another method to prevent V. D. is the system of prophylaxis. It is subdivided into pre- and post-exposure categories. The mechanical method though advocated by some authorities is revolting to ethics. It is abominable from a sentimental point of view also. The chemical pre-exposure prophylaxis has not yet proved a success. Researches are going on in different countries to perfect this system.

Post-exposure prophylaxis can only be administered with the co-operation of the person. Whatever we may think about prophylaxis it is very impracticable in our country due to lack of education of the majority of the labourers.

For the prevention of V. D. in industry both labour unions and the managements can do a great deal. The management should not employ any one suffering from V. D. in an infectious stage, and labour unions should not allow them membership in their unions. So a thorough medical examination will be essential before employment, and admission to the union. Then there should be a periodic check up say every month. The unions and the management should co-operate, otherwise it will be useless.

It is in this connection that the industrial physician has to play a very important and responsible part. Examinations should be thorough, and so it will take time and much patience. Some individuals will refuse to be examined. Again the mere absence of external symptoms is not sufficient to warrant the absence of V. D. Sometimes blood test and spinal fluid test also may be necessary. Even blood test is not always infallible. When suspicions are aroused by the presence of a lesion and as to its nature a dark-field should be taken without delay. The examiner should bear in mind that it is not one or two symptoms that prove the disease but the sum total of all. He should be well versed in the other kinds of diseases which by their appearance and location resemble V. D. A false diagnosis should be avoided as far as possible, for it is disheartening to the physician as well as the patient. When there is any room for doubt in any case a follow up should be arranged. There are test injections which seldom let us down. For all these what we require is a central organization to co-ordinate the entire activity in this direction and I hope a central council for health education may serve the purpose and to start with the concrete work the organization must bear in mind the following essential points without which the prevailing atmosphere in India does not permit us to begin with.

Programme of the Council:—

1. Equipment and staffing of a central serological laboratory.

2. Equipment and staffing of a central clinic.

3. Organisation of a "Flying Squad" for industrial personnel of the different factories.

4. Founding of a general hospital with proper staff and equipment for the treatment of V.D. and their complications among the industrial personnel.

5. Organization of education of the industrial personnel:

(*a*) Instruction.

(*b*) Visual education.

(*c*) General education.

(*d*) Health and hygiene education.

(*e*) Sex education.

(*f*) Physical instruction.

(*g*) Healthy recreations, games, competitions, concerts and entertainments.

(*h*) Encouragement of hobbies and cottage industries.

6. Repression of prostitutes in the industrial area especially of the stray type. In this connection the police authorities could help the social workers.

7. As the labourers and managements benefit more than all others from the above measures the labour unions and managements should contribute substantially towards the initial expense, and the rest should be met by the Central and Provincial Governments' departments of industry, labour and public health. The recurring expenses can be met by the labour unions, Government and the managements.

8. Another organisation essentially needed in the indutrial area is a housing department to provide proper housing for the labourers and their families. They may have to create different labour colonies. They would also have to make arrangements for transport.

9. The labour unions of each colony should open co-operative stores, sales depots, and also banks.

10. The labourer and his family should be included in the health survey, but his family may be left

out in the check up unless the labourer is suspected of infection.

11. After the initial survey no labourer who had V. D. in an infectious stage should be employed in the factory or admitted into the unions. A thorough medical examination will be the condition of employment and membership of the union.

12. Complete prohibition of alcohol should be introduced in the industrial area.

13. If a labourer goes on leave for a considerable time he should be thoroughly examined before he is re-admitted into the colony.

14. Labour unions should adopt stringent measures towards those who are reinfected or infect others wilfully.

15. An organisation for contact tracing, especially in the colony itself, and bringing the carriers for examination and treatment to the clinics.

Without the help of the labourers nothing could be done for them. Therefore the medical officers and labour leaders who have the confidence of the labourers should persuade the labourers to join the movement. They should also try to bring the labourers to a sense of honour and nobility of the human being.

Control of venereal diseases means a lot more than mere cure or prevention. It means self-control, and that has to be acquired through instruction and efforts. As you cannot do good unless you know what is good, so you cannot avoid evil unless you know what it is. All other efforts therefore will fail to control V. D., for the soul of V. D. control is education and understanding.

What we immediately need in India for the control of V. D. is a programme of adult sex education. Majority of the adults of our country are very ignorant indeed. Unless this ignorance can be reduced medical intervention or even legislation can do little to improve the V. D. situation in Indian industries.

I appeal to the organizers and office-bearers of the Indian Medical Association to approach the Central Government to organise an Industrial Health Survey throughout the country. The Central Government should be asked to open free clinics also in industrial areas.

A survey of industrial health cannot be successfully carried out without the co-operation of labourers. We cannot expect the co-operation unless the labourers are treated freely by the surveying organizations. It is very difficult to induce labourers to submit to the medical examination in case of V. D. Here the Trade Unions can help the surveying organization. They can demand a medical certificate from candidates applying for admission and the members can be easily induced to go through the examination. The Trade Union's leaders are the friends of the labourers and they have great influence over them. The labourers will not suspect any selfish interest in their own leaders. A group of health surveyors going about industrial areas collecting specimens of blood are liable to be suspected as agents of blood banks. The co-operation of trade union will enable the industrial health survey to be carried out successfully. Unless adequate facilities in the industrial areas are provided for the free treatment of diseases detected, the health survey may very well be written off as a failure. Mere preparation of statistics should not be the aim of health survey. The real aim of the survey should be to improve the health of the labourers. As an industrial physician for the last few years in Calcutta, and from what I have seen in the industrial welfare work in U.K., especially in London, I know that the labourers will co-operate with the organization undertaking health survey if they gain any immediate and remote benefit. Therefore, when the Government begins the Industrial Health Survey, the authority should have arrangements for treatment in the industrial areas themselves. Labourers do not like to go to far away hospitals and clinics for treatment. Again the treatment given by the medical officer of the particular concern, is more welcome to the labourers of that concern. They like to be treated by some one whom they know and on whom they can rely. Hence, it is a necessity of the co-operation of the medical officers of the various industrial concerns, for success of the industrial health survey. To secure that co-operation I suggest the formation of an association of the medical officers of different factories.

This association should be strictly voluntary to be of real use. These medical men can easily explain to the labourers of each factory the benefits that can be derived from the medical examinations. Wherever possible—I think it is possible in all factories—he can collect specimens of blood etc., and send them to the health survey laboratory for examination. He could also treat the labourers in the dispensary or direct them to be treated in the survey clinics of the locality.

The greatest benefit that can be derived from the association is the exchange of ideas of the different medical men. The association should hold conferences now and then and discuss the various diseases and the most up-to-date treatments known to them. From the doctors conducting the health survey they can get the idea of the general health of the workers and suggestions to improve the dispensary treatment. As it is impossible for any one man to be specialist in all lines, this exchange of ideas will certainly benefit the labourers and the doctors. Hence the Central Government should give its support to such an organization and encourage it with advice and if necessary with funds to establish clinics and research laboratories.

All the scheme will remain on paper unless we do our best to impart health education to the industrial labourers.

Our position in India as far as V. D. are concerned is not so bad. By united persistent efforts we can surely bring the situation under control. Then not only our industry but also all other national activities will develop with a renewed vigour for the greater glory of our country and the good of humanity.

II

MODERN CONCEPTS IN DIAGNOSIS AND MANAGEMENT OF CANCER

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'Cancer has become a part of the activity of every practitioner of medicine' throughout the world. With the advent of our freedom we expect better public health, better sanitation, better food, better mass education and consequently long life and along with that cancer, which is usually the disease of late life. So the practitioners of medicine in this country should be on the alert.

I propose to discuss some of the recent developments in this rapidly expanding field in this communication. The etiology, which is still not completely understood will not be discussed. But, I think it will not be out of place if I mention in passing about the recent idea brought in by Prof. Greene, of Yale University. According to him, "The conception, that cancer arose as a sudden transformation of normal cells, is not supported by experimental evidence. On the contrary, there is evidence to suggest that it is the final stage in a developmental process and that its identifying biological attributes are not present initially, but rather are attained by gradual evolution. Moreover development into the cancer will not occur in normal animals but is dependent on factors peculiar to the host." Therefore it appears that specific factors are concerned in tumour development; but very little information is available regarding the nature of the factors concerned. So far it has been suggested their existence and illustrated their complexity. Their real nature remains to be determined.

Diagnosis

Smear Test for Cytological Examination—One of the most significant advances in diagnosis of cancer is the exfoliative cytology or the smear technique for cytological examination. The diagnostic value of the smear test is based on the constant exfoliation of malignant neoplasms from its free surface. "This is as if a curettage that nature goes on performing continuously." The cells become detached either singly or in clusters.

The vaginal fluid was examined for the first time about 100 years ago by Pouchet (1847) and the sputum about 75 years ago by Hampeln (1876), examination of urine and of thoracic and peritoneal fluids has been a routine procedure for a long time in different pathologic laboratories. Although this study is not new, it was not until 1943 when Papanicolaou and Traut reported their experiences with the diagnosis of uterine cancer from the vaginal smears that interest was created in it. Many modifications of their technique have also come forward. With this technique the nuclei are stained red, erythrocytes orange, cornified cells red, pink or orange and the basophilic cells green or blue. Although great advances have been made, the criteria for the diagnosis of smear are not yet fully standardized. In general the cancer cells are recognizable by the same criteria used in tissue sections. Changes in tissue reaction and other properties may occur after the cells have been dislodged. So special training is required before reliable diagnosis can be made. In fact in U.S.A. one is not allowed to give report until he takes the training in a recognized reliable centre or from Dr. Papanicolaou himself or his staff.

In 1945, J. V. Meigs and his associates reported 1015 cases in whom the uterine cancer was diagnosed by vaginal smear. The margin of error was only 4 per cent. Fremont-Smith of same group concluded that the vaginal smear method was a much more reliable method than biopsy for diagnosing early carcinoma of the cervix. Carcinoma in situ of the cervix occurs on average at about 36 years of age while obvious carcinoma at 46 years of age. So the diagnosis can be made several years before the clinical evidence sets in. It may eventually reveal the presence of cancer when biopsy has failed. In this connection I may cite a case of Papanicolaou, the preserved slides of which I had the opportunity of studying when I was with him. A woman aged 42 was admitted to the New York Hospital on September 7, 1944 with provisional diagnosis of right ovarian cyst. Vaginal and endocervical smears showed evidence of malignant neoplasm. Endometrium was curetted on September 9 and biopsy from the cervix was done on September 23. The findings were inconclusive. Frequent examinations in the clinic were all negative. On December 5, 1945 a second biopsy was done which revealed the presence of an intraepithelial carcinoma. Diagnosis by smear was done 15 months before this diagnosis.

One patient aged 48, was admitted in Chittaranjan Seva Sadan, Calcutta with the history of bleeding and probable diagnosis of fibroid. During smear examination I found malignant cells by Papanicolaou method. My diagnosis was carcinoma cervix. A biopsy was done which corroborated my diagnosis.

It is possible to diagnose malignant diseases of genito-urinary tract including carcinoma and sarcoma of the bladder and carcinoma of renal calyx and kidneys. In some cases the smear gave the first evidence of cancer. In this connection I may cite one case referred to me by an eminent radiologist of the city. On examination of the smear from the sediment of urine I could diagnose the case to be epidermoid carcinoma of the bladder. By examination of prostatic fluid Herbut and Lubins could diagnose cancer in 17 out of a series of 100 patients. Herbut and Clerf have diagnosed bronchogenic and pulmonary carcinoma from aspirated bronchial secretions or washings which bronchoscopic visualisation or biopsy failed to diagnose.

Recent studies have suggested the utility of the sputum smear in the diagnosis of bronchogenic carcinoma. Extensive investigation was done in England by Dudgeon and Wrigly; Liebow, Lindskoy and Bloomer in America.

I have seen Papanicolaou to diagnose carcinoma from gastric specimens. Here much care is to be taken to fix promptly, otherwise the digestive action of gastric juice may destroy the cytological structures.

Blood Tests—Numerous attempts have been made to develop a blood test. Most of these have been disappointing, some may be cited here.

Hæmatological studies—Cancer is not possible if

(1) there is well marked rouleaux formation in the fresh blood preparation.

(2) Blood spread easily between slide and cover-glass.

(3) The monocyte count is under 4.

(4) The lymphocyte count is over 30.

(5) The neutrophile count is over 80.

(6) The neutrophile nuclei smooth or of regular contour.

In favour of cancer—

(1) Slow spread between slide and cover-glass.

(2) Tight cohesion of the R.B.C. into bands or islands with sharply defined contours and tendency of the R.B.C. in the centres of the islands to undergo hæmolysis.

(3) Very irregular nuclear contours of the neutrophiles often associated with unduly thick nuclei—it is so characteristic that sometimes it is possible to diagnose from a single slide.

(4) Polymorphous and very large platelet forms.

(5) Abnormalities in the contour of the nuclei of monocytes.

(6) Occurrence of mitochondrial inclusions into mononuclear leucocytes—mycelial forms—this, if present clinches the diagnosis.

Cytolytic reaction—An emulsion of actively growing tissue of carcinoma is prepared in saline and 1 per cent sodium-di-hydrogen phosphate—one drop of this added to 10 drops of patient's serum. The cells in a part of this specimen are counted in the chamber and the rest is incubated at 40°C for 24 hours and then counted again. Compare both the counts, if ½ the cells are dissolved it is a case of cancer. (Mouse tumour tissue is used for emulsion).

Flocculation tests—Weltman's test—equal amount of serum are added to 10 successive tubes. To each tube add successive dilutions of calcium chloride ranging from 1 to 0·1 per cent. Place in water bath at 100°C. Note the band of coagulation in 15 minutes. Normally the tubes upto the 6th should clot, in cancer it does not.

Biochemical Tests—(1) High concentration of acid phosphatase in the blood is indicative of carcinoma of the prostate. Unfortunately it does not become positive until there is metastasis. The test's principal value is to determine the progress or retrogression of the lesion during treatment.

(2) Drs. Clark Clifton and Newton of Yale University developed a test which tells whether the serum in human blood stops the ability of a body chemical (an enzyme like trypsin) to digest protein. The relation of the antienzyme activity of blood to the presence of cancer is very close. 75 per cent of cancer patients gave positive tests. In benign tumours no positive reaction is found. In 90 per cent of cases it is successful in detecting recurrence after treatment.

(3) Ketosteroid—A compound Δ —9-etiocholenolone, has been isolated which occurs predominantly in the urine of cancer patients and only rarely in the specimens of normal subjects. So the occurrence of the compound is significant though not specific for cancer. Ketosteroid 18 is said to be present in precancerous cases; but further study is necessary to come to a conclusion. An extensive study is being done by Drs. Rhoads and Dobrienor at Memorial Hospital in New York City.

Animal Experiments—Dr. Greene of Yale University claims that the time will come when we shall be able to diagnose the type of tumour by transplanting the tumour tissue in the anterior chamber of eyes of guineapigs. In fact while I was with him I saw him to diagnose the nature of an anaplastic carcinoma to be chondro-sarcoma which was corroborated by histological examination of metastasis on post-mortem examination.

Tissue Culture as a method of Diagnosis—Margaret R. Murray of New York is trying to diagnose tumours by tissue culture. By this method one can successfully find out the cellular origin of tumours and unsuspected potentialities of cells, but so far it has very limited use in diagnosis.

The other well established methods of diagnosis are undergoing constant improvement and the accuracy in diagnosing the early stage of cancer is being attained.

X-ray—Before 1948 it was not possible to differentiate the metastases of hypernephroma from any other form of skeletal carcinomatous metastasis. Now it can be done. Three types have been described —lytic, septate and patchy.

Aspiration biopsy, needle biopsy and endoscopic techniques are also getting improvement.

In conclusion I must emphasise the fact that in spite of all those enumerated above the biopsy remains the best method of diagnosis uptil now. Regarding the biopsy of cervix, there is also a recent improved technique which warrants mentioning. Keeping in mind the probability of carcinoma in situ, biopsy is to be taken from 4 lips or endocervical scrapings are to be taken.

Management

Environmental—It has been observed that debilated patients live longer when they live with their near and dear ones and does better than those who live in institutions or homes for invalids.

Dietetic—Though controversial it is suggested by some that the neoplastic growths may have special nutritive requirements and may deprive the body of unduly large amounts of such essential factors as vitamins, special amino-acids, or the mineral constituents of our diet. Therefore vitamins, amino-acids and minerals like calcium are indicated in large amount. In this connection it may be mentioned that it has been found by Dr. Homburger of Memorial Hospital, New York, that protein per mouth is of no value if the plasma protein is not kept constant. Therefore, plasma protein is to be kept in normal level by sufficient plasma transfusions in cachectic patients and then protein or casein hydrolysate is to be given by mouth to get the proper results.

Therapeutic—Surgery—Twenty years ago the trend towards the use of radium and roentgen rays in the treatment of all types of neoplastic diseases was approaching its peak. At that time irradiation was used on benign or malignant tumours, either before or after operation or as the sole method of treatment. With the accumulation of experience, concepts of the place held by irradiation in the treatment of neoplasms has changed. There have been much improvement in surgical techniques and in pre- and post-operative care and in techniques of anæsthesia. More and more extensive surgical procedures are being developed with good results regarding palliation and 5-year survivals. Unilateral pneumectomy instead of lobectomy has resulted in 23 per cent, 5-year survival rate in cases of bronchogenic carcinoma.

Subtotal esophagectomy with esophago-gastric anastomosis for carcinoma in the terminal $^2/_3$ of the esophagus has been done with good results. Total gastrectomy in less advanced gastric malignancy is producing an increased number of 5-year survivals.

In not distant past a famous surgeon said that he who would operate for gastric cancer was responsible for two fatalities at a single stroke—the patient and his surgical reputation. Now-a-days in many surgical clinics total gastrectomy and resection of the gastric cardia are carried out routinely whenever indicated. I have seen Brunschwig of Memorial Hospital performing at one stage pancreatectomy with total duodenectomy, total spleenectomy, excision of gastric metastases, falciform ligament and umbilicus. I have seen him performing a one stage abdomino-perineal operation with end colostomy and bilateral ureteral implantation into the colon above the colostomy. I saw one patient who was operated on September 23, 1947 at 42 years. A complete excision of pelvic viscera was performed for uncontrolled carcinoma, primary in cervix, that had extended into bladder with vesico-vaginal fistula and had infiltrated the wall of the pelvic colon. Previous treatment was done by radium and x-ray. She went to her usual occupation in April, 1948 though there is a small persistent perineal fistula, biopsies done on different occasions showed no evidence of malignancy.

Modern surgical techniques have made extensive surgery feasible for 70 to 80 years old patients. Only contraindication of surgey are in those patients for whom there is no reasonable hope for recovery or worth-while palliation.

X-ray—Progress in radiation therapy is not however, lagging behind. It is two fold: (1) Improvement in the intensity and quantity of radiation, thereby increasing their effect on malignant tissue and minimising their effect on normal tissue. (2) Improvement in the apparatus and appliances of techniques.

With modern x-ray equipment it is possible to administer accurately measured doses from a minute to a very large amount. Million or more voltage x-ray machine are being used. 22 million volt machine has been instituted in the University of Illinois College of Medicine. These emit rays that have greater speed, intensity and penetrability and the beam is not dissipated into surrounding tissue. This also reduces the total amount of radiation needed.

Radium—Radium emanations consisting of alpha, beta and gamma rays travel with velocity of light. Alpha rays travel with 10 per cent, beta with 99 per cent and gamma with 100 per cent velocity of light. Their tissue penetration is proportional to their velocities. So the last two are used therapeutically. Beta

rays have got a necrotising effect. So the modern trend is to filter out the other rays and use only the gamma rays which are shorter than x-rays and therefore more penetrating. Another recent development, known as the radium packroom, houses a large quantity of radium with equipment of focussing emanations in one direction with an energy equivalent to highly filtered x-rays at 1,500,000 volts.

Donaldson in his presidential address to the Royal Society of Medicine, Obstetric Section, in 1943 stated that the effects of radiation can now be assessed by counting the dividing or mitotic, degenerating, resting and differentiating cells of growing tumour before, during and after irradiation. Glucksmann in 1941 have shown by plotting the results of this count as percentage against time on a graph—the curve shows certain characteristics by which the effectiveness of the radiation can be judged. By this method favourable or unfavourable response can be known by the 14th day from the commencement of treatment. The defect of this counting is that (1) by repeated biopsies the lymph channels may open and there is chance of dissemination of carcinoma; (2) this method applies only to squamous type of cancer and (3) this needs very expert histological knowledge. This is a very valuable advancement and will enable one to find out cases which are not responding to radiation therapy and can be treated better surgically.

Isotopes—With the advent of cyclotron, radioactive isotopes are being produced from common elements. Certain elements are selectively attracted to specific tissues and since many of the cancer cells retain the characteristics of the tissue from which they originated the therapeutic use of isotopes have been investigated. But it is found that it is not possible to concentrate the radioactive material in the diseased tissue to such an extent as is necessary for the cure:—the radioactive iron for red blood cell disease, radioactive strontium for bones, radioactive iodine for thyroid. The encouraging results upto date have been obtained with the use of radioactive iodine in cancer of thyroid.

Atom Bomb—Fission of uranium produces intensive and destructive radiations. The employment of these rays for treatment of cancer is a possible method. These are also being tried but results are not published. There is a possibility of cobalt being used for treatment.

Hormones and other substances—The studies of Huggins suggested that androgen is necessary for the utilization of oxygen by the prostatic cancer cells; removal of androgen or administration of estrogens interferes with this oxidative enzyme system. Thus orchectomy and later estrogen therapy have come into use. Sudden drop of androgen may stimulate pituitary to increase the output of gonadotropic hormone which may produce climacteric symptoms and stimulate extragonadal sources of androgens particularly the adrenals. Eucouraging results with estrogens in prostate cancer prompted a trial of androgens in the treatment of carcinoma of female breast and genitalia. But there is little success by this treatment.

In addition to hormone other substances may interfere with the metabolic process of the tumour cells and selectively destroy neoplastic tissue. A very recent work indicates that certain compounds of folic acid antagonists, (Pteroyl-triglutamic acid and pteroyl diglutamic acid) may have beneficial effects in patients with various types of cancer. This is under trial.

Mukherjee (1949) during his experiments with floccutated insulin phosphotungstates found molybdates and many allied substances have oxidising, hypoglycæmic and diuretic actions. He used sodium tungstate subcutenously and got some palliative results in cancer cases—diminished pain, diminished discharge, diminished size. Recently using another derivative intravenously he is getting better results.

Nitrogen Mustard—It was discovered during World War I that leucopenia may result from poisoning with mustard gas. A series of compounds were introduced during World War II. The nitrogen mustard differ from mustard gas by replacement of sulphur by nitrogen. They exert cytotoxic effect which is particularly marked upon hæmopoietic tissue. This property led to the clinical trial of certain of these compounds in malignant disease of lymph glands and bone marrow. The therapeutic effect of nitrogen mustard, in the palliative treatment of Hodgkin's disease, lymphosarcoma, leukæmia and allied diseases have been established by numerous publications in the past 4 years. Other types of cancer have been treated much less extensively with this product due to the fact that the results of treatment is not impressive. In 1948, trial was given in lung carcinoma cases in Memorial Hospital. The results were found to be palliative. No cure has been claimed by this method in any case. So long methyl-bis and tris-aminhydrochloride have been used. These compounds are very toxic; bis being more toxic than tris compound. We are expecting a better compound very soon as many of them are under trial. It has got a definitely palliative effect in cases of Hodgkin's disease.

Other nucleo-toxic substances—Amongst the substances those interfere with the process of mitosis urethane, stilbamidine and cholchicine are worth mentioning.

I have seen urethane being used in the Wards of Nathon Rosenthal of Mounts Sinai Hospital, New York City in cases of myeloid leukæmia. Palliation comparable to that achieved by radiation is obtained by this means. According to some it has beneficial effect on carcinoma of the prostate also.

I have observed the effect of stilbamidine with low protein diet on multiple myeloma. The relief of pain and marked clinical improvement results.

Colchicine has proved to be toxic for curative use; but it has got the property of rendering cells more vulnerable to x-rays and thus helps roentgen therapy in cancer.

Recently podophyllin have been given trial. It inhibits malignant cells; but its mode of action is not clear. It is also very toxic.

Toxin—Cooley's bacterial toxin was introduced in 1892. Recently Shear isolated a tumour-necrotising poly-saccharide over a thousand times as potent as Cooley's preparation, from Serratia Marscens cultures. Work is now proceeding with this toxin.

K.R.—A Russian discovery K.R., a protozoal endotoxin from the body of the South American trypanosome, *Schizotrypanum Cruzii*. This when injected is selectively cancerolytic. In 12 out of 19 patients with carcinoma, the lesion disappeared and was replaced by connective tissue. In U.S.A. there is some confirmation of this work by experiment on mice.

Conclusion

From the above we see that the multiplicity of cures for cancer have been advocated at one time or another but none of them are specific. In other words it shows our helplessness. The pathology of cancer, rather knowledge of the nature of malignancy, has now advanced to the point where we can recognize the value of any treatment and the direction in which to look for possible remedies. So we may hope in near future the discovery of cure of carcinoma.

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JOURNAL OF THE

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AT THE HEALTH MINISTRY'S CUTCHERRY

We rub our eyes in surprise and dismay to learn from the cutcherry of the Health Ministry that the ministerial budget for 1949-50 has been 'cut down absolutely to the bone' as an economy measure. It seems, on the face of it, that the Bhore Committee's report, along with all the cost in time and money that it involved, is going to run to waste for want of will and energy.

The entire plan and programme of conveying medical aid and relief to the remote rural areas of the country will fall completely flat and fail to make any headway for an indefinite period. We understand Rajkumari Amrit Kaur, the Hon'ble Minister of Health told pressmen that although the Health Ministry had contemplated an expenditure of about 45 lakhs, this had been cut short and reduced to Rs. 20 lakhs only. On the revenue side, the budget had been cut down from Rs. 2 crores to Rs. 1 crore only, although the original amount of Rs. 2 crores was only 2 per cent of the whole budget. If this is so, is it the time to spend another 2 crores for decentralisation of Central Secretariat?

It seems, therefore, that while the I.M.A. was going ahead with an ambitious Public Health programme, namely, that the State should take over all medical colleges, hospitals and dispensaries and should take necessary measures for nationalisation of health services, the State was bending under the pressure of internal and international economic load and beating a risky retreat. The idea of making medical aid and relief available to all sections of the people in rural and urban areas is, therefore, a cry in the wilderness. Public Health administration even in its present parsimonious form is going to be petrified and paralysed.

Speaking at a Blood Bank demonstration at New Delhi, the Congress President, Dr. Pattabhi Sitaramya stressed the need for increased medical facilities for the 'common man'. "During the British Rule", he said, "nothing was done for the common man". It may be true. But may we not ask our leaders, thinkers and men at the helm of affairs whether, the same 'common man' under the present regime is getting medical aid and relief in any sense better or more improved than what he used to get when tied to the apron string of the Imperialist British Government? Does he get medical aid more promptly or more efficiently or with greater sympathy and courtesy? We are afraid all that we expected of our national Government will now end in bubble and froth after this official declaration of *jehad* against the Public Health Budget.

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Our Health Minister, Rajkumari Amrit Kaur, herself revealed certain pathetic Public Health figures while inaugurating the Seventh Tuberculosis Workers' Conference in Bombay. She said there were only about 8,000 beds for T.B. patients, 120 clinics, 200 trained doctors and a very small number of health visitors. What India needed if she wanted to run a modest tuberculosis scheme was 5 lakhs of beds, 4,000 clinics, 15,000 doctors, 50,000 nurses and an equal number of health visitors. She further said that T.B. took a toll of 5 lakhs of lives from this accursed land every year and another 25 lakhs of people, on an average, fell victims to this malady from year to year, doomed to live a life of condemnation and misery without treatment either at home or in hospital. These are appalling figures indeed but these have been repeated and recounted good many times. Their repetition like the repetition of *mantras* is not likely to appease the demon of diseases. The problem is vast and terrific. Neither the Government nor the people nor for the matter of that the medical profession of India has shouldered their respective responsibilities to ameliorate the menace. Nothing is more tragic than the fact that in a disease-devastated country like India such drastic retrenchments are going to be effected in the name of economy.

These cuts would not only affect adversely plans for primary health centres in the villages but will hold up completely all schemes of hospital expansion and upgrading of medical institutions for education.

The Ministry had also to give up the five overseas scholarship budgeted for the next year and draw its consolation from the fact that the Rockefeller Foundation had sanctioned ten overseas scholarships every year for Indian students from 1949 onwards.

It is a matter of gratification, no doubt, that India is receiving help at this juncture from international organisations. In 1949-50 India has been given 750,000 dollars from the United Nations' International Childrens Emergency Fund. There are already working in India four malaria teams and one V.D. team of the World Health Organisation. A maternity and child welfare team and a cholera team of W.H.O. has also come and would soon begin working. In addition India will get help from international organisations in anti-tuberculosis work.

We have great admiration for the modern and scientific outlook and ideology of our Health Minister. She has already started the nucleus of a health fund to which contributions are slowly accumulating. According to her own profession she has chosen the United Kingdom's Health Services as the model to be worked up to. This is an encouraging good news indeed, if only an ideal too ambitious to allow of materialisation in near future. The thirsty souls of our poor and suffering countrymen will, we are afraid, be reminded of the elusive cup of Tantalus and its perpetually receding drink. We may only remind her that the National Health Service has to provide for various benefits to 5 crores of people in the United Kingdom at an aggregated expenditure of £350 million per annum.

How are we to meet the great discrepancy between the proverbial 'coat' and the 'cloth' and make a suitable Public Health Programme for this vast multitude of 32 crores of people? We have to go ahead boldly and make a beginning according to the recommendations of the Bhore Committee which was constituted both by Indian and foreign experts of Public Health and Medical Education. We hear that Mr. Aneurin Bevan, the British Health Minister, is visiting this country on invitation. We wonder with what impressions of our achievements he will return.

The Health and Social Service departments of the Government of India ought to realise as H.E. Sri Rajagopalachari, the Governor-General of India has observed that 'theirs is the missionary side of the States organization and it devolves on them to initiate and bring about a new crusading spirit that is so necessary at the present juncture of this country' for it is then and then only that we can hope to make up for lost time in our Public Health administration.

The Government must proceed with earnestness and will and raise the necessary money by taxation or loan and must not grumble and hesitate to give effect to the Bhore Committee's scheme, for people are already doubting if that valuable and costly document is shelved for good.

(*Concluded from page 144*)

probation to discover the best criteria for placing an offender on probation and the best form of probationary care. Many other things could be discovered at the same time, and some of them would quite likely lead to the development of special educational system for certain ascertainable types of offender, such as the potential recidivist, the young psychopath, or the unstable dullard,

Dr. Carroll mentioned some generally unchallenged statements, such as that parental control had diminished, that religious faith had declined, that boys clubs were a major weapon in preventing delinquency—all of which were plausible and probable, but none of them supported by studies which could withstand scientific criticism. Much was heard about defective control of children, but it was not always the fault of the parents; on the religious question it was very hard to avoid subjective bias; and as for boys clubs, a survey in 1942, Young Offenders, by Carr Saunders and others, gave information which cast some doubt on the general assumptions though it did not settle the issue. It was not that these assumptions were necessarily wrong, but they were accepted without proof. Incidentally Dr. Carroll suggested that the Press might try to design a system of crime reporting which would have crime prevention as its main object. Finally he laid stress on the importance of keeping such records and statistics as would make it possible for others dealing with delinquents to know exactly what had happened.—*Brit. M. J.*, **2**:866, 1949.

CURRENT TOPICS

I

AMINOACIDS AND PROTEIN HYDROLYSATES

A symposium on 'Amino-acids and Protein Hydrolysates' was held in London on September 28—30 by the Food Group of the Society of Chemical Industry. While some of the papers were on the purely chemical and physico-chemical aspects of amino-acid preparation and isolation, several speakers discussed the nutritional and clinical aspects of protein and amino-acid nutrition and metabolism.

In the course of a comprehensive opening address to the conference Professor E. C. Dodds drew attention to the work of Dent and Schilling (*Biochem. J.*, **42,** 1948) who had examined by means of proper chromatography the portal blood and sometimes also the jugular blood and the urine of dogs after the feeding of various proteins such as casein hydrolysate, ground beef, and human serum (the plasma proteins being removed first by ultrafiltration). No peptides had been found in the blood after any of these proteins were fed. After feeding human albumin certain ninhydrin-reacting substances decomposable by hydrolysis were found in the urine. When dog plasma protein was fed to dogs there was no appreciable change in blood amino-acid levels, though the protein disappeared from the gut. It was presumed from this that under the condition of experiment the dog plasma had been absorbed intact. This finding opens up wide and interesting fields of exploration. Dent (*Biochem. J.*, **43,** 1948) has also shown in recent studies that in at least five human diseases—namely, acute yellow atrophy of the liver, the Franconi syndrome, cystinuria, phenyl ketonuria, and multiple myelomatosis—urinary amino-acid excretion is abnormal and characteristic of the disease. Professor Dodds referred to the work with isotopic tracers by means of which the rapidity of turnover of the proteins in the liver had been demonstrated: in rats half the protein is degraded and resynthesized within six days (Shemin and Rittenberg—*J. Biol. Chem.*, **153**:401, 1944). He also described how certain amino-acids had developed into therapeutic agents, two examples of these being methionine and glutamic acid.

Amino-acids as Therapeutic Agents—The importance of methionine in the body depends on two factors: it contains the element sulphur and a labile methyl group. Because of these two characteristics it plays an important part in the detoxication and lipotropic functioning of the liver. Several workers have shown that methionine can apparently improve cirrhotic conditions of the liver. There have also been reports on the use of methionine in the treatment of infective hepatitis, but in this condition it has not been found uniformly successful. Methionine has been used successfully in the treatment of a patient with subacute necrosis (Ferriman and others—*Lancet*, **1**:958, 1946), and Eddy (*Industrial Med.*, **14**:283, 1945) reported that in trinitrotoluene and carbon tetrachloride poisoning it gave good results. Glutamic acid has been shown by Weil Malherbe (*Biochem. J.*, **30**:665, 1936) to be of importance in the metabolism of brain tissue. Zimmerman, Burgemeister, and Putman (*Psychosom. Med.*, **9**:175, 1947) administered glutamic acid to children and adolescents with convulsive disorders, some of whom were also mentally retarded. They found what they considered to be a significant improvement in the results of intelligence tests.

In 1938, Fildes (*Biochem. J.*, **32**:1600, 1938) made the interesting observation that indoleacrylic acid inhibited the growth of *Bact. coli*, and subsequent work showed that 4, 5, 6, and 7-methyltryptophans all possessed the power of inhibition. These observation have been extended to other synthetic amino-acids: Beerstecher and Shive (*J. Biol. Chem.*, **164**:53, 1946) found β-2-thienylalanine was strongly inhibitive, and Elliott, Fuller, and Harington (*J. Chem. Soc.*, 1948, p. 85) have shown that certain β-derivations of alanine have antibacterial properties. New chemotherapeutic agents may be found by continuing the study of the metabolism of bacteria in the manner that Woods (*Brit. J. Exper. Path.*, **21**:74, 1940) initiated when he discovered that the sulphonamides compete with p-aminobenzoic acid for an enzyme system necessary for bacterial growth.

Amino-acids and Cancer—The observation in 1939 that dextro-rotatory glutamic acid (the presently accepted unnatural form) could be isolated from the protein of malignant tumour was contested by Chibnall and his colleagues, (*Biochem. J.*, **34**:285,1940), but it was reaffirmed by Kögl as a result of tracer studies. Professor Dodds pointed out the importance of such an observation as possibly giving a clue to the reason for the independent continuous reproduction of the cancer cell as compared with the self-limiting reproduction of the non-malignant cell. However, it would appear necessary for considerably more positive evidence to be produced before the presence of a dextro-rotatory acid can be regarded as a characteristic of the protein of malignant tissues.

Apart from the part played by individual amino-acids, there is evidence that they form certain conjugates either with other amino-acids or with chemical groups and that these compounds are of special importance in the body for example, folic acid (pteroylglutamic acid). Synthetic products which are modifications of this amino-acid derivative are being used extensively in the treatment of cancer, and typical examples are alphamethopterin and aminopterin. Great improvement has followed the administration of these substances in certain cases of leukaemia and Hodgkin's disease, but the results appear to be of a transitory nature. Whatever their ultimate position in cancer therapy will be, they are of very great theoretical importance.

Professor Dodds also drew attention to the point made recently by Sir Robert Robinson—namely, that a number of amino-acids can be regarded as building-stones not only for proteins but also for alkaloids. Thus ornithine may be regarded as one of the originating substances of some coca bases.

Protein Composition—Dr. Kenneth Bailey described some features of the amino-acid composition of

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Boots

* *The illustration is from an illuminated medical treatise by John of Ardern* (1307-1390)

proteins and pointed out that exact amino-acid analyses, such as Sanger's work on insulin, were of great use in determining the make-up of proteins but did not disclose much about their physico-chemical nature. In nutrition research determination of the amino-acid make-up of the mixed proteins of the individual foodstuffs was of value. Dr. Bailey reported that when he plotted reliable data, such as Tristram's on amino-acid composition, in the form of a histogram he found that the essential amino-acids fell within a much narrower frequency range than did the dispensable amino-acids. This would indicate that with the exception of incomplete proteins such as zein and gelatin most proteins have relatively constant proportions of those amino-acids which are found to be essential in the diet. Dr. Synge also emphasized the uniformity of the mixtures of amino-acids encountered in nature. He thought this should lead in the near future to a systematization of procedures for determining amino-acids, though much further work was necessary on the more complicated substances such as peptides. Dr. Neuberger referred to the changed outlook on the chemistry of the proteins which had taken place between the two world wars, and Dr. Tristram and Dr. Barton-Wright described the chemical and microbiological methods for the determination of the amino-acid composition of proteins.

Dr. Lea drew attention to the amino-acids or Browning reaction which occurs in aqueous solution, or in the comparatively "dry" state, between protein or amino-acids and sugars to produce changes in odour, flavour, colour, solubility, etc. The net effect of this is sometimes desirable and purposely sought, but in other instances is highly undesirable, even sometimes amounting to a loss in the biological value of the protein. Investigations with dried milk and other foodstuffs have been shown that the most rapid of the chemical reactions is a combination of the reducing sugar with the free amino groups of the protein. Since these are very largely the ε-amino groups of the lysine side-chains a nutritional deficiency of this amino-acid may result. The use of hydrolysed protein and of amino-acids as flavouring agents was considered by Dr. Rees: in small amount (0·05-0·5%) the monosodium salt of glutamic acid is said to improve and enhance the flavour of the food.

Dr. Dyson and Mr. Bavin described the careful methods which are necessary for the preparation of an enzymic hydrolysate of casein so that it is sterile, pyrogen and anaphylactogen-free, and does not cause blood-pressure changes on administration. Precautions are also taken to reduce the deposition of tyrosine. These speakers also drew attention to the work of Geyer and his colleagues on the usefulness of a fat emulsion in which the particle size is not more than two microns. This emulsion can be autoclaved and administered in 30% concentration without the risk of emblism.

Protein Metabolism—Dr. D. P. Cuthbertson reviewed the comparative physiology and pathology of amino-acid and protein metabolism and drew particular attention to Rose's latest account of his human experiments on amino-acids and hydrolysates of protein for the maintenance of nitrogen equilibrium in man. The latter had found that for maintenance the eight amino-acids, *l*-tryptophan (0·25 g.), *l*-phenylalanine (1·10 g.), *l*-methionine (1·10 g.), *l*-leucine (1·10 g.), *l*-isoleucine (0·70 g.), *l*-valine (0·80 g.), *l*-threonine (0·50 g.), and *l*-lysine (0·80 g.), are necessary (his assessment of the minimum daily requirements of each for the adult is indicated in parentheses, but he recommends as the daily intake twice these amounts). For the growing human organism histidine and arginine are probably necessary, and it may be that some of the amino-acids thought at present to be dispensable may be necessary if the synthetic capacity is liable to be overtaxed, for the human requirements of amino-acids for pregnancy and lactation or in different forms of illness are still not known. Rose has found disconcerting differences in the minimum amount of amino-acid required by different individuals under comparable experimental conditions. With certain amino-acids the results are consistent, with others there may be as much as a 100% difference. While the role of methionine, cystine, and vitamin E in the prevention of experimental acute liver necrosis is still not very clear, progress is being made. The recent observation by Patt and his colleagues on the protective action of cysteine on rats exposed to x-radiation is also of considerable interest.

Dr. Cuthbertson stressed the relative constancy of the intake of protein in dietary surveys of all classes and at all energy levels in temperate climate when the protein is expressed as a percentage of total calories. This occurs at all ages from one year onwards. All the normal physiological states appear to be covered when the protein intake lies between 11 and 14% of the calories, the higher values being related to growth, reproduction, and lactation. The speaker also discussed protein insufficiency, the effects of trauma and infection, and the requirements for convalescence, as outlined in a recent paper by him (*Brit. M.J.*, **2**:731, 1948).—*Brit. M.J.*, **2**:865, 1949.

II

JUVENILE DELINQUENCY

A conference on the scientific study of juvenile delinquency was held on October 1, 1949, at the Royal Institution, London. It was convened by the National Association for Mental Health, the Royal Medico-Psychological Association, and other bodies, and was opened by the Earl of Feversham, president of the National Association of Probation Officers. Introductory remarks were made by Miss Cecily Craven and by Mr. Alec Rodger, honorary secretaries respectively of the Howard League for Penal Reform and the British Psychological Society. The conference was attended by representatives of Government departments, local authorities, the magistracy, the Church, educational bodies, and voluntary and youth organizations. The Home Secretary, in a message, said that the Home Office was considering the question of Government assistance for research.

Limits of Present Knowledge—Dr. J. D. W. Pearce, medical co-director, Portman Clinic (Institute for the Scientific Treatment of Delinquency), said that much of the work on this subject had been handicapped by lack of knowledge of scientific method and by rather woolly recording. A difficulty had been the absence of adequate control groups, but a great deal was known about the intelligence and educational attainment of the juvenile delinquent. Many delinquents were skilful and therefore were never caught, so that it might be that the intelligence of delinquents in general was ranked too low and more nearly approximated to average intelligence. Something was known also of the problems of psychopathic personality and temperamental instability, though there was still disagreement about how far the latter was constiutional or acquired. Electroencephalographic studies were helping to throw light on conduct disorders. Sir David Henderson had reported cases in which cerebral surgery in adult criminals had brought about a remarkable change in character; but these things were in their infancy. Something was known about the psychological mechanism involved in delinquency, not only in the individual but in the group. Clinical types could be identified and treatment prescribed; prescription might be relatively easy and administration more difficult. Individual psychotherapy based on sound analytical training had revealed a great deal about aetiology. Facilities for observation, care, treatment, selection, grouping, and experiment, however, were inadequate. Rarely was delinquent conduct to be explained by a simple cause; nearly always there were many factors concerned.

Dr. H. Mannheim, reader in criminology, London School of Economics, agreed that in this matter of the young delinquent all too often half-baked truths and slogans took the place of exact scientific knowledge. The weakness of most investigations—Sir Cyril Burt's *The Young Delinquent*, first published in 1925, was an exception—was that they were exclusively based on court cases; consequently very little was known about delinquents who did not appear in court or about non-delinquents who in essential characteristics resembled delinquents. Non-court cases ought to be included in any study. Dr. Mannheim, at the end of his paper, asked whether the research done so far had been of any practical use to anybody—to the legislator and administrator or to the practical worker in the field. Sixteen years ago Sir Alexander Paterson wrote a paper entitled, "Should the Criminologist be Encouraged?" He was not sure of the answer, apparently, but the greatest encouragement the criminoligist could desire would be a favourable answer to the question he had put.

Personality and Social Factors—Dr. John Bowlby, director, Child Guidance Department, Tavistock Clinic, mentioned three false assumptions by which research in the past had been vitiated: (1) that delinquency was clear-cut and distinct from other forms of behaviour; (2) that there was no necessity for qualitative distinctions; and (3) that the problem could be studied by concentrating on cases brought into court. Little light would have been cast on the problem of malnutrition if physiologists and physicians had not studied large samples of the population irrespective of whether they came into hospital or not; many most informative studies on nutrition had been made outside the clinic. It was only a specially selected group of delinquents who came into court. Public-school boys rarely came before juvenile courts. Was that because they never stole or because their parents and schoolmasters dealt with them in some other way?

Individual susceptibility to adverse influences was clearly a psychological problem. Why was it that some individuals grew up more susceptible to anti-social influences than others? Research in child development suggested that it depended on the relation which the child had with his parents in his early years. Two factors specially common in the history of persistent delinquents were prolonged separation (not less than six months) of the child from his mother during the first five years, and the child being unwanted by parents who were themselves unstable and unhappy. Blanket generalization regarding "family atmosphere" and "broken homes" were as useless as would be similar generalizations about diet in research on nutrition. A thorough analysis of the young child's social "diet" was required for a study of anti-social attitudes.

Dr. Bowlby suggested that worth-while project in this field of research would require from 12 to 20 professional workers, a corresponding number of clerks and secretaries, a period of five or eight years, and an expenditure of £15,000 to 20,000 a year. The sum spent on research on nutrition, which had paid such splendid dividends, far outstripped these totals. "The whole of medical and sociological research should be financed for a decade out of the sums spent on the development of the Brabazon."

Professor T. S. Simey, Department of Social Science, University of Liverpool said that it was not justifiable to consider the characteristics, behaviour, and treatment of the delinquent as an isolated individual. Not even the adult criminal, still less the young offender, should be considered as something essentially "different" merely because he had been found guilty of breaking the law. Crime was the result of disfunction within the society in which it took place.

Call for a Central Research Body—A central authority to initiate, execute, and co-ordinate research and to provide technical advice was called for by Professor Simey, and the same idea was taken up by the last contributor to the symposium, Dr. Dennis Carroll, medical co-director of the Portman Clinic, who said that there was a case for setting up a "Delinquency Research Council", possibly covering social research in general. There was no shortage of suitable experienced individual advisers, but for the many highly expensive and complicated researches required such a central authoritative body would have the advantage of commanding enough money and enough general support to make the practical task really effective. For example, there was need for a thorough survey of

(*Concluded at foot of page 141*)

NOTES AND NEWS

MICROFILM SERVICE UNITS SET UP BY THE I.R.F.A.

In the U.S.A., libraries are employing increasingly the practice of making copies of printed materials from books or periodicals on a film like that used in cinematography. Such films are exceedingly compact both for storage as well as for transport. For example, a 100 feet roll of cine film that can slip into an ordinary coat pocket can copy the contents of about 1,600 pages of material from books or periodicals. Such films can be projected on a compact ground glass screen, 12 inches by 12 inches by a special instrument known as a 'Reader'. Such 'Readers' are available in most of the progressive libraries in the U.S.A. The 'Reader' can be utilised, if needed to obtain photostat copies on paper for use of institutions not provided with 'Readers'. The service is called 'Micro file' film service.

A central library organization should possess a copying equipment called a 'Reader' which will make copies of printed materials on cine film for distribution. This central organization as well as libraries and institutes and colleges should each possess a 'Reader' to read microfilmed articles.

Only a limited number of medical and scientific journals are received in India and for this reason many workers are deprived of reading important research articles on various subjects. To overcome this handicap, the Indian Research Fund Association have set up a Microfilm Service Unit at the Central Research Institute, Kasauli, where the central library of the Association is also located. This Unit is capable of undertaking filming of articles from any journals available in libraries in India. The membership of this service is not restricted and institutes or libraries wishing to take advantage of this service can do so by joining the microfilm service scheme as members on payment of an annual subscription of Rs. 25|-. For this subscription, members are entitled to have any articles microfilmed at a charge of one anna per page plus postage. A large number of institutions are now members of this scheme.

The Indian Research Fund Association have also set up a microfilm service unit at the Laboratories of the Tata Memorial Hospital, Bombay, to augment the microfilm service at Kasauli. It is expected this unit will start functioning before the end of the year.

To make use of microfilmed articles, medical colleges, research institutes, libraries, etc. will require a 'Reader'. The cost of a 'Reader' is approximately Rs. 500|- and can be obtained from Messrs. Kodak & Co., Ltd., Kodak House, Hornby Road, Bombay. It will, however, be necessary to obtain an import licence for this equipment before placing the order with the firm.

The Indian Research Fund Association have also sanctioned funds for the setting up of a Photostat Unit along with the Microfilm Service Unit at the Central Research Institute, Kasauli, to supply photostat copies of microfilmed articles to the institutions requiring them. The necessary equipment required for the unit has not so far been received. When the unit is set up, it will be able to supply photostat copies of microfilmed articles to members of the microfilm service scheme at a charge of one anna per page plus postage.

The Secretary, Indian Research Fund Association, Central Secretariat, New Delhi, would be glad to receive applications from institutions, libraries, etc., for membership of the scheme and to supply any further information required on the subject.

CHOLERA CONTROL PROJECT IN MADRAS PROVINCE

Active field work in cholera control aiming at developing techniques for the ultimate stamping out of this terrible disease will be begun next year by a WHO Cholera Control Team in the Cauvery Delta region of Madras Province where the population suffers the ravages of cholera all the year round according to plans worked out by the international cholera experts attending the Third Session of the Joint Study Group on Cholera of the Office International d' Hygiene Publique and the World Health Organisation which terminated recently in New Delhi. The Group also recommended the establishment of a second WHO Cholera Control Team in a similar deltaic region in the East Bengal Province of Pakistan, and laid down the lines of further research to be undertaken into the factors responsible for the persistence of cholera outside the "cholera season" in so-called epidemic areas. The meeting of the Joint Study Group on Cholera which opened at the WHO Regional Office at Delhi was presided by Dr. C. G. Pandit, Secretary of the Indian Research Fund Association, and formerly Director of the King Institute, Madras.

The experts were unanimous in praising certain investigations into the endemicity, or persistent presence, of cholera at present being carried out by the Indian Research Fund Association (IRFA), following suggestions made by the Second Session of the Joint Cholera Study Group in Paris last year. Earlier this month, while visiting the Tanjore District in the Cauvery Delta where some of the IRFA field investigations are being carried on, the Group was able to see cholera patients in their homes and discuss local difficulties. They were impressed by the co-operation forthcoming from the population of the area and their desire to improve their sanitary conditions. The experts also visited laboratories and hospitals in Bombay, Madras, Tiruchirapalli, Dacca, and Calcutta. Later they attended meetings of the Cholera Advisory Committee of the IRFA in New Delhi from November 15th—17th.

The establishment of one or more WHO Cholera Control Teams in endemic areas was envisaged by the Second World Health Assembly meeting in Rome last June. In working out concrete recommendations concerning sites and methods of work for these teams, the Cholera Study Group laid special emphasis upon the provision of an abundant supply of controlled water, the development of economical and effective excreta disposal methods for individual families, and the health education of the local population to ensure their willing co-operation in the project.

After comparison of reports of studies undertaken in different districts where cholera seems to be constantly present, the Group noted that such endemic areas occurred most frequently in river deltas with high population density and high humidity and where there was abundance of uncontrolled water supplies with high organic content and some salinity. Both the Cauvery Delta in Madras Province and the Ganges Delta in East Bengal conform to this pattern.

Among the problems of cholera endemicity into which the Group recommended that further investigations should be made were the possibility of cholera infection being carried by fish from one place to another, and the part played in the dissemination of the disease by sub-clinical (mild) cases, contacts and convalescents.

The experts reiterated their opinion that cholera immunization was of value as a quarantine measure provided that the vaccine and the mode of vaccination conformed to standards laid down by WHO. They also recommended that research should be carried out on the immunity of the population in endemic areas.

A standard method for the laboratory diagnosis of cholera based on recent research work carried out by four Indian scientists was formally approved by the Study Group.

The recommendations of the Joint Cholera Study Group will be submitted to the WHO Expert Committee on Epidemiology and Quarantine which meets next month in Geneva.

Attending the meeting were:

Dr. C. G. Pandit, Secretary, Indian Research Fund Association (Chairman).

Medecin-General M. Vaucel, Director Public Health Department, Ministry for French Overseas Territories, Paris.

Lt. Col. M. Jaffar, Director-General of Health, Government of Pakistan, Karachi.

Dr. M. Gaud, Director of the Office International d' Hygiene Publique (Paris).

Dr. P. M. Kaul, in charge of cholera studies, WHO, Geneva.

Sir Aly T. Shousha Pasha, Director, WHO Regional Office for Eastern Mediterranean.

Dr. C. Mani, WHO Regional Director for S. E. Asia.

Dr. R. Pollitzer, WHO Epidemiologist.

THE FOURTH INTERNATIONAL CONGRESS OF NEUROLOGISTS AND NEUROSURGEONS, PARIS : FRANCE.

The International Congress of Neurologists and Neurosurgeons was organized in 1928 with the co-operation of many eminent neurologists and neurosurgeons, throughout the world. All the scientifically advanced countries were participating in this Congress, even though it was not called forth by any Government. The various neurological societies in different countries supported this Congress. These were held once in every four years and the previous one was in 1936. Due to the war, it was not possible to have this till this year. The Fourth International Congress was held in Paris from 5th to 10th September, 1949.

The Honorary Presidents of the Congress are Sir Charles Sherrington (Oxford), Dr. Gordon Holmes (London), Prof. Georges Guillain (Paris) and Dr. Andre Thomas (Paris). This year's President was Prof. J. H. Alajouanine and Chief Vice-President: Prof. J. A. Barre (Strasbourg). There are nominated Vice-Presidents from each country. Dr. Raymond Garcin (Paris) was the General Secretary for this last Congress.

This year the Executive Committee of the Congress agreed that this Organization may become part of the General Assembly of the Council for the co-ordination of International Congresses of Medical Science, which is an official organ of the World Health Organization.

There were 27 countries participating in this Congress this year. The Congress was organized exceptionally well with various sessions for six days. All the morning and late afternoons were devoted to major papers of scientific advances and studies and the early afternoon sessions were given to discussions and presentations of various other papers. There were also a few other major scientific papers in the late afternoons for the whole Congress. The whole programme was divided into various main subjects as encephalography and myography, the thalamus, virus diseases of nervous system, epilepsy and surgery of pain. There were several papers of outstanding advances in this branch of medicine, particularly on virus diseases, cerebral localization and epilepsy.

For the first time India had its representation in the Congress this year. Dr. Jacob Chandy, M.B., M.SC., F.A.C.S., F.R.C.S. (C.), Professor of Neurology and Neurosurgery, Christian Medical College, Vellore, South India, was nominated Vice-President for India to the Congress. There were altogether five members from India to this, even though four were associate members, two of them being students from England.

It is essential that we in India, who are vitally interested in Neurology, should organize a Neurological Society for the advancement of this branch of medicine.

MEDICO-SOCIAL IN V. D. CLINICS

Now that gonorrhœa and syphilis are so amenable to treatment, at all events in their early stages, more social and epidemiological studies are being undertaken

with the object of finding out how the venereal diseases can be completely eliminated. Before the recent war almoners and social workers were employed in only a few of the larger V. D. clinics, and most stress was laid on treatment as a means of reducing the incidence of V. D. During the war contact tracing became an accepted practice, especially after some highly trained American nurses showed what it could accomplish, and consequently many more patients attended the clinics. All patients must be impressed with necessity for continuing treatment, and defaulters must be followed up. There is, however, much more in the V. D. problem than this. Why are people promiscuous? Where are they promiscuous? When do the uninfected meet the infected? Why do they not report for examination and treatment? Why do they default? Macfarlane (*Publ. Hlth.*, **62**:4, 1948) has recently given answers to these and other questions in a report on the results achieved by a medico-social unit set up in connexion with the V. D. department at the Newcastle General Hospital. The unit consisted of an almoner with assistants, clerical staff, and three full-time and three part-time health visitors. An analysis of the records of 1,000 patients attending the department revealed the following facts: 82% received some assistance from the unit; 1,560 contacts were brought to examination, and of these 70% were suffering from gonorrhoea or syphilis or both; 74% of the 1,000 patients were married; public houses were far the commonest meeting places. Personal factors leading to promiscuity included unhappy homes, criminal tendencies, poor to moderate intelligence, irreligion, ill use of leisure, drab lives, drinking, and poor moral fibre. Long-term plans for the reduction of V. D. must take these causes of promiscuity into consideration.

Defaulters are common in all V. D. clinics, and in Newcastle they are written to and visited. Of 3,478 defaulting women, 2,032 reattended as a result of 6,34 letters and 5,195 visits, and 70% of male patients responded to one or two communications. These figures indicate the amount of labour involved. The main reason for default included difficulty of leaving work, illness, domestic troubles, and irresponsibility: it is clear that an efficient medico-social unit can help patients to overcome some of these handicaps. Penicillin treatment is considered to have increased defaulting because it shortens the period during which syphilitic patients are a danger to themselves and to the community, and Macfarlane thinks that when adequate treatment can be obtained without difficulty such patients should be compelled to complete their treatment.

There can be no doubt that education, particularly sex education, is likely to be the most effective single method of solving the V. D. problem. Stokes (*J. Vener. Dis. Inform.*, **29**:296, 1948) considers that the object of sex education is "to place reason in control of emotion without emotion losing its colourful and revivifying vitality." In his opinion sex education should begin at an early age, and if the educators—parents, school-teachers, doctors, and clergymen—are themselves ill-equipped to give the necessary instruction. They must be educated first. Since promiscuity is the most important cause of the venereal diseases, it seems unlikely that any method of control will eliminate them until people cease to be promiscuous.—*Brit. M. J.*, **1**: 1044, 1949.

Effect of Mosquito Larvicide on Wild Life

Preliminary tests with DDH (dichlorodiphenyltrichloroethane) as a larvicide for the control of Anopheles quadrimaculatus mosquitoes demonstrated that this insecticide was toxic to fish and other forms of aquatic life. The U. S. Public Health Service, therefore, deemed it advisable to determine the over-all effects. Tarzwell (*J. National Malaria Soc.*, **7**:199, 1948) describes the procedures employed and the results obtained. As a dust, routine applications DDT caused little apparent damage to surface organisms. DDT dusts can be applied routinely at dosages of 0·1 pound (45·4 Gm.) per acre with little or no significant harm to wild life. Light emulsions of DDT are more toxic to wild life than DDT fuel oil solutions. Routine treatments with fuel oil DDT solutions at dosages of 0·1 or 0·05 pound per acre generally kill large numbers of fish after the tenth treatment and with continued use greatly reduce the population of fish and fish food organisms. Routine treatments at discharge rates of 0·1 pound of DDT per acre had no significant effects on the reptile and amphibian populations. The natural driftage of DDT sprays and aerosols from water areas onto surrounding terrestrial areas had no harmful effects on bird and mammal populations during one season's treatments. No catastrophic or significant changes were produced in the terrestrial insect populations. Such treatments did not impair the strength of bee hives located on adjoining areas or decrease their production of honey. Routine treatments at discharge rates of 0·1 pound of DDT per acre as sprays or aerosols do not significantly change the populations of surface insects during one season's treatment. Although routine airplane treatments over a period of two years produced some fish kill, the total fish population was not changed and production in pounds per acre remained about constant. Routine air plane larvicide at discharge rates of 0·1 pound of DDT per acre is not significantly harmful to wild life and least during the first two years of treatment.—*J.A.M.A.*, **140**:485, 1949.

RESEARCH ON CANCER

Cancer research has recently made some definite progress in the early diagnosis and effective treatment of the disease. One striking development has been announced by George W. Kidder and his co-workers of Amherst College, who have discovered a clear-cut metabolic difference between cancerous and normal mammalian tissue. The difference lies in the cells' use of guanine, a substance entering into the formation of nucleic acid. Malignant cells require guanine, normal cells do not.

The finding was applied in a significant experiment. A cancerous mouse was fed on a diet including pseudoguanine, a metabolically useless compound which resembles guanine so closely that cells take it up as if it were guanine itself. This antimetabolite did

not kill the mouse cancer, but it stopped tumour growth. A growth resumed as soon as administration of the drug ceased. Although pseudoguanine may be toxic to normal as well as malignant cells, the technique represents an approach that may yield results in the future.

Another approach to the problem of curbing the growth of malignant tumours is reported by Henry K. Wachtel of Fordham University. Wachtel has extracted a fatty substance from fresh cattle pituitary glands which inhibits the growth of soft-tissue cancers in experimental animals. In some cases the cancer regressed partly or completely. The pituitary substance also produces a definite effect in the blood, reducing the level of the fatlike compound cholesterol. The identification of the substance awaits its preparation in large quantities.

Three significant advances have also been made in the diagnosis of cancer. S. A. Gladstone of the New York Polyclinic Hospital has developed a simple sponge technique for recovering specimen cells from various body surfaces and cavities. The sponge, which is made of gelatin, is rubbed over areas from which specimens are desired. Enough cells adhere to the gelatin to provide material for microscopic study. The technique is being tested by hospitals in several cities and has been employed in more than 700 cases, including cancers of the cervix, uterus, rectum, mouth, pharynx, œsophagus and lung. It is said to be at least as reliable as biopsy, the surgical removal of a tissue sample which is a standard practice in diagnosing cancer. The sponge method may also aid in the diagnosis of gastric cancer, the most difficult form of cancer to detect. The gelatin can readily be inserted into the stomach through a tube.

Another test, for the examination of patients who may have cancer of the cervix or uterus, has been devised by Harold S. Burr of Yale University and Louis Langman of New York's Bellevue Hospital. It is based on the electrical characteristics of living tissue. Contacts placed on the abdomen and in the vagina pick up a negative potential in non-pregnant women with no uterine or cervical pathology. A positive potential is observed in pregnant women and those with cancer or certain other disorders of the genital tract. Erroneous diagnoses were made in only 15 per cent. of the tests.

Charles Huggins of the University of Chicago has reported a test for cancer that involves the analysis of blood. Iodoacetic acid inhibits the coagulation of proteins in heated blood serum, and it takes less iodoacetic acid to inhibit coagulation in the serum of a person with cancer. This difference is the basis of the test. Although false positive reactions are obtained in pulmonary tuberculosis and acute infections, these conditions may be easily distinguished from cancer. The test, which provides no information as to the site of the growth, has been checked on 200 persons. Huggins has described it as "not quite as good as the Wassermann test" for syphilis. Blood tests for cancer have been reported on four previous occasions, but until now have proved unreliable.

(*Scientific American*, June, 1949, Ref. *Science & Culture*, **51**:112, 1949.)

WHO MALARIA TEAM HELPS FIGHT PLAGUE OUTBREAK

Nine members of the WHO international malaria-control team stationed in Malnad (Mysore), including the leader, Mr. Paul Bierstein and two women public health nurses, have moved to the nearby town of Shimoga to help combat an outbreak of plague there, announces the WHO Regional Office in New Delhi. Although plague is more or less constantly present among the 60,000 population of Shimoga, the occurrence recently of a persistent outbreak led the Deputy Commissioner, the District Health Officer and the President of Shimoga Municipal Council to decide at the end of October to accept the offer of the WHO team's services.

The team had fortunately completed the bulk of its malaria control operations for the season, and was able immediately to begin work in the plague-infested sections in Shimoga town. It is using a technique which has proved efficacious both against plague in parts of India and against murine typhus in the U.S.A. This consists in residual DDT spraying modified to act specifically against the disease-carrying rat flea. One experimental spraying carried out by this method in October last in Sagar (Malnad) is reported to have given satisfactory results in rat-flea control. The WHO team brought initial supplies of DDT with it to Shimoga.

"The plague-control demonstration work", writes team-leader Bierstein, "has been greeted with considerable enthusiasm by the population of Shimoga. The Municipal Council is providing local personnel, some equipment and supplies, and a motor-truck, as well as voting Rs. 10,000 for the purchase of DDT."

COLLEGE OF PHYSICIANS & SURGEONS OF BOMBAY

Out of ten candidates who appeared at the D.O.M.S. Examination the following two have passed:—

Bhide, Madhukar Ganesh (G.M.C.) and
Sharma, Shiam Sundarlal. (G.S.M.C.).

THE 4TH GUJARAT KATHIAWAR PROVINCIAL MEDICAL CONFERENCE, BHAVNAGAR

The 4th Gujarat Kathiawar Provincial Medical Conference will be held at Bhavnagar during the 3rd week of March, 1950. There will be a Scientific Section where symposia has been arranged on following subjects:

(1) Infantile Cirrhosis of Liver. (2) Tropical Ulcer. (3) Functional Uterine Hæmorrhages.

Medical profession is invited to speak on the symposia. Scientific papers on other medical subjects are also invited. Please communicate with the Hony. Secretary, Dr. Rasik M. Kamdar, M.S., F.R.C.S., Bhavnagar.

CORRESPONDENCE

The Editor is not responsible for any views expressed by contributors

CHAIR IN DERMATOLOGY

Sir,—Since the time I have come overseas and I am working in different capacities in different hospitals in Glasgow I am amazed how the medical studies for the undergraduate and post-graduate students in Glasgow are controlled by Professor George Wishert, who has retired from active teaching but is the Dean of the Faculty of Medicine. All the undergraduate students and postgraduate research workers are under him. He makes all the appointments in the medical faculty and in different hospitals. One is actually surprised at the efficiency of the whole co-ordinated medical services all over Great Britain and on it will depend the National Health Services Scheme in Great Britain.

Skin is a subject which has been recognised in Great Britain and the chair in Dermatology has been created in Great Britain in the Edinburgh University and Dr. G. H. Percival, M.D., Ph.D., F.R.C.P., D.P.H., is the first Professor of Dermatology but there are lecturers in Dermatology in all the different Universities of Great Britain and there are many senior dermatologists also. Quite a large number of young medical graduates are working under the different senior dermatologists in different hospitals and at the same time preparing their theses for M.D. in Dermatology so that in time they can take the places in the hospitals as senior dermatologists when the present incumbents retire.

We have all over India quite a large number of medical colleges and hospitals and I wonder why the medical studies cannot be undertaken by the University and the Dean of the Faculty of Medicine of the particular university should not be responsible for co-ordinated studies in different branches of medical studies.

In places like Calcutta, Bombay and Madras there are more than one Medical Collees. The various departments can better be arranged so that different specialists visit different hospitals on different days. So far Calcutta goes where I can see five undergraduate medical colleges and two postgraduate medical schools, the skin department particularly can be so arranged in the five different undergraduate medical colleges and in the tropical school, that the different specialists should visit different institutions on different days and they should be called Lecturers in skin diseases and since there is enough postgraduate study material in dermatology and since the attendance of patients at the Tropical School of Medicine is enormous the physician-in-charge of the skin department in the Tropical School should be made the Professor of Dermatology and facilities should be available in the Tropical School of Medicine at Calcutta for the postgraduate students to work for M.D. or Ph.D. in Dermatology so that in time there will be quite a large number of skin specialists all over India.

It is high time that eminent doctors in Calcutta thought about it and had given a start for the Chair in dermatology in India.

There should be a minimum qualification to be the Professor of Dermatology and to be a Lecturer in dermatology in different undergraduate medical colleges in Calcutta and at other places in India.

Since dermatology is one of the very important subjects in the tropical country its study also in the undergraduate course is essential for at least 2 terms with hospital practice.

I draw the attention of the Deans of the Medical Faculty of the various universities in India and particularly I beg to draw the attention of our Hon'ble Minister-In-Charge of Medical Department, Dr. B. C. Roy and the Dean of the Faculty of Medicine, Calcutta University, Director of Health Services, Government of West Bengal and the Director of the Tropical School of Medicine to consider starting the chair in dermatology and creating the works of lecturer in dermatology in all the undergraduate medical colleges in Calcutta.

From my visit of the various skin hospitals in Eire, Northern Ireland, Scotland and England, I am convinced that clinical materials in India in dermatology are in plenty and for the lack of proper organisation of the departments of dermatology by creating posts of lecturers in dermatology valuable clinical materials in dermatology are being wasted which could be utilised for undergraduate and postgraduate studies in the subject and would have given great relief to the sufferers of different dermatological conditions in India.

A Diploma Course in Tropical Dermatology should be started forthwith and the services of the dermatologists of different medical colleges in Calcutta should be utilised to popularise the already very popular skin department in the Calcutta Tropical School of Medicine. The great rush in the skin department at the Calcutta School of Tropical Medicine can be avoided and patients can be seen more attentively and teaching can be done if the in-charge of the skin department wroks with all the five skin specialists with him.

Co-ordinated work in a big skin department like that one in the Calcutta Tropical School of Medicine and healthy discussion between the specialists is sure to throw some new light on the tropical dermatological problems which may attract attention of the whole world and in future may be a great centre for the Tropical Dermatology.—I am, etc.

K. D. LAHIRI, M.B.B.S., F.D.S. (LOND.)
Clinical Assistant in Skin Diseases,
Southern General Hospital, Glasgow.

Glasgow,
8-7-49.

NON-MEDICAL MAN AS BACTERIOLOGIST

Sir,—With reference to the resolution adopted on 6.7.42 and published in page V of the Supplement to the Journal of the Indian Medical Association of November, 1942 I beg to state as follows:—

(1) In May, 1942 the Bengal Public Service Commission invited applications for the post of Superintendent of the Bengal Vaccine Laboratory from candidates possesing the prescribed qualifications according to which both medical and non-medical graduates with requisite bacteriological training and experience were eligible for the past. As I possess the requisite qualification, I was an applicant for it.

(2) Immediately afterwards, the above resolution was passed, and the theme of the resolution was (*a*) that a non-medical graduate cannot even be trained as a bacteriologist and cannot gain experience in bacteriological, immunological and pathological work, and (*b*) that a medical graduate with adequate training in bacteriology, immunology and pathology is the only person possessing the requisite qualification. Wide publicity was also given to the resolution by its publication in the Journal of the Indian Medical Association as stated previously. Copies of the resolution were also forwarded (under letter No. G|342|1941-42 dated 24.7.42) to high officials including members of the Public Service Commission. The impression was thus created that the Superintendent must have qualified as a medical graduate, and the sequel was (*a*) the nomination of three medical graduates by the Public Service Commission, and (*b*) the appointment of the 3rd nominee (a Muslim candidate) to the post in question. The resolution and the procedure adopted were specifically against me and ruined my career although the plea contained in the aforesaid resolution that a non-medical graduate does not possess the requisite qualification (the term "qualification" means the acquirement, either through University education or self-training of knowledge or skill which qualifies or fits a person for a particular employment) for the post in question is untenable on the following grounds:—

(*i*) The Superintendent, besides being the supervising officer, functions also as a Bacteriologist, and Bacteriology and Immunology as separate sciences are not confined within the field of study in the medical curriculum. Although Universities in India, unlike those in England and America, have not yet decided that these sciences are subjects worthy of a secure position in the University curriculum, a non-medical graduate possesing competent knowledge of basic sciences (especially chemistry) may easily train himself to become a competent Bacteriologist.

(*ii*) The former Superintendent (namely V. G. Raju) was a non-medical graduate and held the post since the inception of the Vaccine Laboratory in April, 1927 till his retirement in July, 1941.

(*iii*) I have also had the misfortune of being a non-medical graduate but I was appointed to the post of Bacteriologist in the Vaccine Laboratory (in Nov., 1927) for which I did not even apply, and was retained in it against my wishes to utilise my services as an efficient Bacteriologist. During the tenure of my service since 1927 I have amply proved my capacity to fulfil the requirements of the particular post and have never stood second (in respect of quality, quantity and merit of the work put in) to any of the medical graduates who have ever served or are serving as Bacteriologists in the Vaccine Laboratory. There is therefore no reason why I (a non-medical graduate) cannot be considered to be qualified for the post of Superintendent.

(*iv*) I was deeply shocked at the procedure adopted by the Bengal Provincial Council of the Indian Medical Association against a qualified non-medical graduate like myself and since then I cherished the hope of getting advanced bacteriological training in England.

(3) I went to England last year to pursue a course of post-graduate studies in advanced bacteriology, and I have passed the D.Bact (Diploma in Bacteriology) Examination of the Manchester University. Thus, whereas the above-mentioned resolution stressed that a non-medical graduate could not be trained as a Bacteriologist, I put in 21 years' efficient service in the post of Bacteriologist in the Vaccine Laboratory and have acquired the highest bacteriological qualification available in the British Empire.—I am etc.,

N. K. Roy, D.Bact. (Manch.),
Bacteriologist,
West Bengal Vaccine Laboratory.

Calcutta-19.
28.7.49.

DOCTOR'S DRESS

Sir,—I have read the letter of Dr. M. V. Ramarao, Vizagapatam, in the correspondence column of your journal (May, 1949, page 304) with interest. It is really high time that the medical profession should plan suitable dress, medical ethics and the professional discipline in general. I have often noticed the conduct of some of the practising physicians in the towns and rural areas which to me appear not up to the professional ethics. The behaviour towards the sick and his attendants in the hospital and private practice, the levying of the consultation fees and the general bearings of a practitioner in the public are sometimes not very acceptable. Travelling in a motor bus, tram car or going to a dinner or tea party with his stethescope spectacularly held out or worn round the neck is often noticed and ridiculed by the public. It is no doubt that by such demonstrations a medical man attracts attention of the rest of the crowd, but this sort of self advertisement, in my opinion, cheapens and lowers the respect of this honourable profession in the mind of the general public. No profession advertises itself so prominently and awkardly as does a doctor. It is agreed that a medical man should be easily identified by the corwd in case of emergency. But it should be presumed that in an emergency, when an urgent medical aid is required it should be the honourable duty of the medical man himself to offer his services than that he should wait to be sought out, by the crowd. I agree with Dr. Ramarao that the medical man should

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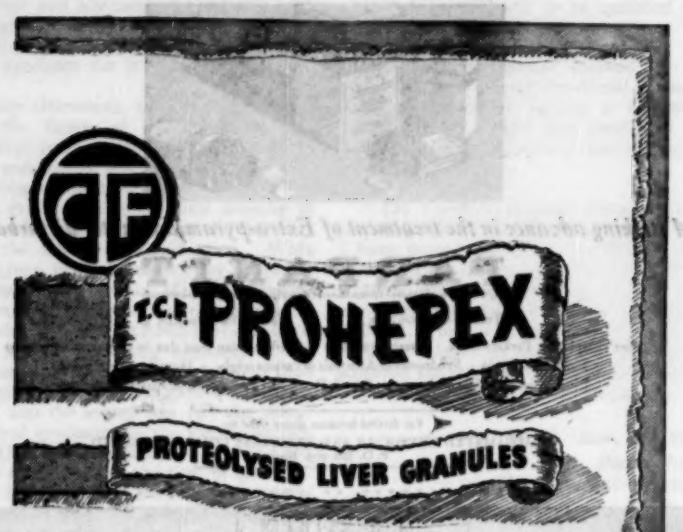

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have a uniform and a distinctive dress or adopt some mark by which he could be identified as apostle of the art of healing. While appreciating his arguments on the use of hat and sherwani and a pyjama, I venture to put forward following additional suggestions:—

The theme of the dress worn by a medical practitioner should be *loose, airy, comfortable dress suitable for the tropical climate and at the same time should be simple and distinctive to catch the public eye.*

1. *The head gear*—The pith sola hat is no doubt one of the most useful headgear in the tropics and is now used all over the world. It gives protection to the head and shade to the eyes. The next best alternative dress is the turban. Experience of centuries has shown that for this country there is no more comfortable, cool, insulated and light-weight head dress than a turban of lightly starched white thin muslin. The turban is recognised as an Indian dress all over the world and therefore should be insisted upon as a national dress so as to distinguish ourselves from other nations in the world.

2. *Coat*—The Sherwani and Achkin are very graceful and aristocratic Indian dress indeed. I do not consider these, however, a practical dress for an active and busy person like a practising physician or a surgeon. Loose bush-shirt with four buttoned pockets and a loose belt around the waist has been found by experience in the World War II and expeditions in the tropical jungles to be the most practical and comfortable dress. This coat is simple, airy and free from encumbrances of the present day civil dress (Consisting of shirt, starched collar and a necktie, long sleeves and double cuffs, etc. A bush-shirt or Hawaian shirt coat of a light grey colour or pure white drill or of some other soft cloth with half-sleeves should be a most convenient dress for a busy practitioner. During winter a bush-shirt of woollen cloth with long sleeves), if necessary supplemented with a neck wrapper tucked inside the shirt should be comfortable. This dress gives enough pocket space for a pen, a thermometer, stethoscope, knee percussor and other medical gears, to be carried outside the medical bag.

3. *Trousers*—There is no gainsaying the use of a pyjama or the long pants and in summer if necessary a "short" may be worn with stockings and shoes. These dresses are recommended in preference to a Dhoti, Lungi, Shalwar or tight pyjama and a Sherwani.

4. *The colour of the dress*—As suggested above pure white or light grey coloured dress will be eloquent and spell of decency, dignity and cleanliness.

5. *Shoes*—Any kind of airy shoes giving comfort and protection to the feet, from soil and dirt and at the same time not hampering a steady and rapid gait may be adopted.

6. *Professional identification*—Instead of carrying the stethoscope prominently around the body, it is suggested that a signet ring with the medical emblem of red cross or *"a caduceus"* may be worn. This ring will be worn in a similar way as is done by Masonic Brotherhood. A broach or an arm band could equally serve for identification. Carrying of such marks will be more becoming and sober than the way it is done in these days. The present mode of carrying the stethoscope cannot be deprecated in stronger words. Notwithstanding the æsthetic sense, the chest piece of the stethoscope, which comes daily in contact with the body of various patients may be a source of nuisance or infection to the physician as it is too near the face and the nose when carried around the neck or when kept in hand constantly.

The uniform suggested above will be comfortable and convenient for the medical practitioner and will easily single him out for the humanitarian services if required in cases of emergency. This dress have been worn by the Army Medical Service all over the world and also by the tourists. This dress even should be acceptable universally by the World Medical Association. Almost a similar dress is worn by Salvation Army though the latter use bright red colour for the coat.

Comments from the medical profession would be welcome.—I am, etc.

J. S. CHOWHAN, M.B., B.S., A.I.R.O. (I.M.S.).
Central Drugs Laboratory, Cal. 1.9.49.

BETEL LEAF AND BETEL NUT

Sir,—With reference to the enquiry by Mr. K. D. Shah regarding the complete analysis of Betel leaf in the 'Correspondence' columns of your journal of July, 1949, I present the following details regarding the same.

Moisture	percentage	85·41
Proteins	"	3·07
Ether extractives	"	0·80
Minerals	"	2·25
Carbohydrates	"	6·14
Calcium	"	0·227
Phosphorus	"	0·044
Iron	percentage in milligrams	5·74
Calorific value per each 100 grams		44·0
A-Vitamin (International units per each 100 grams)		Nil
Carotin (International A-vitamin units per each 100 grams)		Nil
B-1 Vitamin (International units per each)		Nil
B-2 Vitamin		Nil
C-Vitamin (in milligrams per each 100 grams)		4·8
Fibre		2·33%

I am etc.,
M. A. S. PAL.

Guntur. 25.8.49.

* * * *

Sir,—Apropos to the letter of Dr. K. D. Shaha of Baroda published in *J. Indian M. A.*, **18**:405, 1949, I am herewith giving the information required.

The text-book of materia medica, gives the pharmacology of Betel (Pan), and betel nut as follows:

Betel (Pan)—Aromatic sialagogue. Allaying dryness and thirst. Produces a sense of hunger when

chewed. Acts as a stimulant to gastric glands, and is carminative.

Betel-Nut—Deodorant, sialagogue and laxative.

A careful study of the following table of analysis of nutritive and vitamin values of Betel leaf and cashew nut, will prove the usefulness, of these articles which are included in the Pan, and which, as appears from his letter, Dr. Shaha thinks are redundant. The analysis of Betel nut (Supari) is not available, I think supari falls in the botanical category of cashew nut hence I have included the analysis of cashew nut, although I admit, betel nut might not come up to the same mark.

The table given below is reproduced from the Vade mecum published by 'Schering Corporation' who in their turn, acknowledge their indebtedness for this information to Doctors—R. G. Chitre, K. S. Mhaskar, R. J. Vakil and others of Bombay.

I do not eat or chew pan, and hence my support to the cause of betel leaf and betel nut, in this letter may please be not misunderstood.

TABLE OF ANALYSIS

	Betel leaves	*Cashew nut*
Moisture	85·41%	5·89%
Protein	3·07%	21·19%
Fat	0·80%	46·93%
Mineral matter	2·25%	2·43%
Fibre	2·33%	1·27%
Carbohydrates	6·14%	22·29%
Calcium	0·227%	0·053%
Phosphorus	0·044%	0·449%
Iron	5·74%	4·95%
Caloric value per 100 grams ..	44·0	596·3
Carotene (International vitamin-A units per 100 gms.)	9·635	100
Vitamin B_1 (I.U. per 100 gms.)	21	189
Vitamin B_2 (mgms. per 100 gms.)	0·0308	not known
Nicotinic Acid mgms. per 100 gms.	0·7	2·1
Vitamin C (I.U. per 100 gms.) Vitamin B_6 ..	4·8	not known

I am, etc.,
K. W. PHADKAR, L.M.P.

Mavi Path, Jalgaon, E.K.
19.9.49.

* * * *

Sir,—In reply to Dr. K. D. Shah's in your correspondence column of the July, '49 issue of your esteemed journal, I wish to give the analytical data on above.

	Betel-Leaf (Piper-Betel)	Arecanut (Betel-Nut)
1. Protein ..	3·1%	4·9%
2. Fat ..	0·8%	4·4%
3. Carbohydrate	6·1%	47·2%
4. Calcium ..	0·23%	0·05%
5. Phosphorus ..	0·04%	0·13%
6. Iron ..	5·7 mgm. %	1·5 mgm. %
7. Minerals ..	2·3%	1·0%
8. Fibre ..	2·3%	11·2%
9. Moisture ..	85·4%	31·3%
Vitamin A ..	Nil	Nil
Carotene .. (Pro. Vitamin A)	9600 I.U. per mgm.	5 I.U. per mgm.
Vitamin B_1 ..	Nil	Nil
Vitamin B_2 ..	30·0 mgm. %	Nil
Vitamin B_6 ..	0·7 mgm. %	Nil
Vitamin C ..	5·0 mgm. %	Nil
Calories ..	12 per oz.	70 per oz.

The above data are taken from tabulated records of the Government Nutritional Research Laboratories at Coonoor (S. India).—I am, etc.

R. SAMBASIVAN, M.B., B.S.

Tiruchirapalli. 27.9.49.

OH TRICOLOUR FLAG OF INDIA, THOU ART A PRIDE OF INDIA

Sir,—Will you kindly publish this piece in your journal.

1. A Symbol of Independence,
   And of Unity,
   How millions pray,
   For thy safety.
2. To keep the banner high,
   How many lives lost;
   With great sacrifices,
   We know thine worthy cost.
3. O Brahma, Vishnu, Mahesh,
   Saffron, green and white;
   Reminder of Ashoka,
   And our birth right.
4. On 15th August day
   We broke foreign yoke;
   By truth, Non-violence,
   Whole world so spoke.
5. On this very day,
   We all take a vow;
   Keep thee ever flying,
   To ills we never bow.
6. Oh God! Instil such
   Spirit in all of us;
   We die or we perish,
   None separate us.
7. R. D. Bhargava prays,
   With Tricolour in hand;
   Let us be worthy,
   Of our motherland.

I am, etc.,
DR. RAM DAYAL,

Ratangarh.
27.9.49.

REVIEWS

NUTRITION—By Lt. Col. Barkat Narain. Second Edition, 1949. Demy 8vo, pp. 75. Illustrated. Published by Author, Director of Health Service, Delhi Provinces, New Delhi. Price Rs. 1|8|..

This is a popular book on nutrition. Every man should understand that nutrition does not necessarily mean vitamins. Unfortunately this misconception is widespread.

To maintain proper nutrition right types of food must be produced in adequate quantities. This food is to be distributed in such a way so that it may reach the consumer in good condition and at a reasonable cost. The food is also to be consumed in a way so that proper health is maintained.

Lt. Col. Barkat Narain has attempted to educate the public on this line. He has added to this a list of deficiency diseases. The chapters on—how food is wasted, cooking of foods, campaign for better food and grow more food are interesting. It looks that apart from propaganda in literature, some other methods are necessary to implement these for the benefit of people. Popular exhibitions in the mofussil cinema, practical demonstrations will be helpful for the illiterate majority. The book is profusely illustrated with pictures which were used in nutrition exhibitions.

It is heartening to know that the book has already been translated into Hindi and it is now proposed to translate it into 'Gurumukhi'. The book contains a forward by the Minister of Health, Government of India.

B. P. Neogy.

1948 YEAR BOOK OF GENERAL SURGERY—Edited by Evarts A. Graham. pp. 717. Published by The Year Book Publishers, Inc., 304 S. Dearborn Street, Chicago 4, U.S.A. Price $4.50.

The book presents recent advances in every aspect of general surgery. The subjects are lucidly dealt with. Inclusion of subjects like anæsthesia and analgesia, antibacterials in surgery, metabolism, electrolytes within the purview of this book, has been very helpful to the readers. The chapter on bones is rather short as the author probably thought that they are better placed in the Orthopædic Year Book.

The book will be a guide to every general surgeon in his future work, and therefore it should be in his possession.

A. K. Dutta Gupta.

AN INTRODUCTION TO PHYSICAL METHODS OF TREATMENT IN PSYCHIATRY—By William Sergant and Eliot Slater. Second Edition, 1948. Demy 8vo, pp. xi+215. Published by E. & S. Livingstone Ltd. 16 & 17 Teviot Place, Edinburgh. Price 10s. 6d. net.

The mysticism of Psychiatry, shown in therapeutics by the application of suggestion, hypnotism and even analytical methods, is fast disappearing with the advent of physical methods. These therapeutic measures are bringing psychiatry on a scientific basis and will help in amalgamating this branch with general medicine, instead of alienating it from the latter. Many, if not all, of these measures, can be well managed by the general practitioners after some training.

This book is the first attempt to satisfy the demand for a book with detailed description about these measures alone and it has been very much welcomed by the profession as shown by the reprinting and translations into Swedish and Spanish languages in a short time. It has further been necessary to produce a new edition to cope with further advances in the meantime. The improvements are seen mostly in the chapters on insulin therapy, convulsive therapy and prefrontal leucotomy giving more practical points. The chapter on epilepsy, is a new addition by another expert—it is very comprehensive, though concise and touches all the practical points in the treatment. On the whole, the book has become more practical and up-to-date than the previous edition. I am sure, it will be quite useful to every physician, be he a psychiatrist, consulting physician or an attending one.

C. Saha.

PSYCHOLOGICAL MEDICINE—By Desmond Curran, and the late Eric Guttmann. Third Edition, 1949. Published by E. & S. Livingstone Ltd. 16 & 17 Teviot Place, Edinburgh. Price 12s. 6d. net.

It has been proved beyond doubt that Psychiatry is essential for the maintenance of health and happiness of mankind. It is no wonder, therefore, that it has been incorporated more elaborately in the post-war medical curriculum.

But medicine is becoming vaster day by day in all its branches and we cannot crush our young undergraduates with the burdens of all these sweet embarrassments—as they are to him at the time.

We should, therefore, give him the crystallised deposits of all the different branches without confounding him by the abstract knowledge and that in the shortest possible time. This book has solved the problem in Psychiatry by giving its principles in the most readable words keeping the real tendencies of the present time.

We recommend this book to every student of medicine and every general practitioners as they will know the principles and become up-to-date in Psychiatry by reading this short treatise only.

C. Saha.

CURRENT MEDICAL LITERATURE

Graves' Disease

Read (*Radiology*, **52**:557, 1949) presents a report on 15 patients treated for Graves's disease twenty-five years ago. The group of patients all had typical thyrotoxicosis, none had previously undergone thyroidectomy and all received deep x-ray treatment during the course of the illness. The review was undertaken to correct, if possible, the general impression that irradiation of the thyroid was only palliative in its effect and rarely resulted in cure. In this group the initial basal metabolic rate varied from +23 per cent to +112 per cent. The irradiation was given at 130 kilovolts filtered through 0·25 millimetre of copper and 1·0 millimetre of aluminium. A dose of 200r was given weekly over each lobe and usually twelve treatments were given. In severe cases a shorter course was given in the following year. The patients received from 3 to 23 exposures, the dosage range varying from 600r to 6090r. The largest dose was given to the patient with the metabolic rate of +112 per cent. This patient with one or two others suffered some telangiectases and atrophy of the skin in the treated area. Fourteen patients have been traced. Nine patients are living and well at ages from thirty-four to seventy-three years. Three are dead from other causes. One has undergone thyroidectomy with only fair results and one patient is living (aged seventy-one years) with disease which is chronic. No ill effects of treatment were observed except the skin atrophy previously mentioned. Only one patient has hypothyroidism. She lives in an endemic goitre area and her basal metabolic rate has fallen gradually to —27 per cent without signs of myxœdema.

Surgical Intervention in Hæmophilia

Craddock and others (*Ann. Surg.*, **128**:888, 1949) call attention to the fact that there is lack of unanimity of opinion as to the best course to follow in patients with hæmophilia in whom acute surgical conditions develop. After a review of the literature, the authors present the history of a patient, aged 27, who had hæmophilia and required an operation for appendicitis. This patient died four days after operation in spite of intensive anti-hæmorrhagic therapy. Necropsy revealed pulmonary œdema, bilateral hæmothorax and a large blood clot in the appendical bed extending along the right peritoneal gutter from the pelvis to the liver. There was also an extensive hæmatoma at the site of the abdominal wound, not communicating with the peritoneal cavity. The mortality following internal surgery in established cases of hæmophilia is relatively high. Of 4 previously reported patients in whom the diagnosis of hæmophilia was unequivocal, 2 died from hæmorrhage following operation, while 2 recovered. The other eleven reports of internal surgical procedures in patients with bleeding tendencies were excluded from this analysis because of inadequate basis for the diagnosis of hæmophilia. If these were included, the total number of recoveries following operation would be 11 with only 4 deaths, or a mortality rate of 26·7 per cent, a figure the authors believe to be erroneously low. They discuss the significance of continued hæmorrhage in the presence of a normal *in vitro* clotting time and of its relation to the fundamental defect in hæmophilia. Emphasis is placed on the failure of the congulation time to indicate the severity of the hæmorrhagic tendency or the degree of response to treatment, the difficulty in choosing a suitable case for operation and the great difference in controlling internal hæmorrhage as opposed to bleeding from an external site.

Topical Application of Fluorine

The teeth are given a thorough prophylaxis to remove food debris and plaques. One quadrant of the mouth is isolated with cotton wool rolls and dried thoroughly, and the sodium fluoride solution (1·5 per cent) is applied and the teeth kept moistened with it for five minutes. The other quadrants are then treated similarly in turn.

The following points have recently been brought out by various investigations:—

(*a*) Three to six applications per annum are necessary for optimum results.

(*b*) The earlier the age treatment is undertaken, the better the results.

(*c*) Berton has reported an increase in caries activity once topical applications cease, but Bibby's latest report indicate that heightened immunity is etained for at least three years.

Van Haysen and Mueller have recently shown that fluoride of tin (stannous fluoride) is even more effective than sodium fluoride in reducing enamel solubility.

The main action of fluorine seems to be in its great affinity for the calcium of the enamel to fom insoluble calcium fluoride, which is resistant to acids. However, it ie claimed that it can also act as an enzyme inhibitor to prevent the final reduction of carbohydrates to form acid.—*J. All-India Dent. Ass.*, **21**:131, 1949.

Idiopathic Thrombocytopenic Purpura and Menorrhagia Mistakenly Treated for Local Disease

Dameshek and Rheingold (*J.A.M.A.*, **139**:993, 1949) write that four cases of idiopathic thrombocytopenic purpura with menorrhagia were observed, in each of which various gynæcologic operations, including dilatation and curettage and hysterectomy, were performed without any effect on the profuse bleeding. This suggested the definite likelihood that idiopathic thrombocytopenic purpura might be present.

The various tests by which the diagnosis of idiopathic thrombocytopenic purpura is made are described. It is suggested that each patient with menorrhagia (or other bleeding tendency) as a symptom should have at least a blood smear examination, to rule in or out the presence of diminished platelets. Performance of this and other simple hæmatologic tests would go far toward reducing the number of unnecessary gynaecologic procedures in cases of menorrhagia.

In the presence of abundant platelets on smear, a normal bleeding time and a negative result of a tourniquet test, idiopathic thrombocytopenic purpura and, in fact, almost all other hæmorrhagic disorders which women may be subject to can be discarded. In the presence of abundant platelets, a distinctly increased bleeding time and/or a distinctly positive result of a tourniquet test, one can make the diagnosis of some form of vascular purpura, including that known as pseudohæmophilia. In the latter an increased bleeding time is the outstanding or central manifestation and is probably due to a disturbance in capillary retractility following trauma. It hardly

ever is necessary to consider an increased congulation time as the cause of abnormal bleeding in a woman. One can make a simple and fairly accurate test of the clotting time by placing 1 c.c. of blood into a clean 5 or 10 c.c. test tube and observing the presence or absence of clotting every 5 minutes by gently tilting the tube. More accurate tests for the coagulation time may be made.

Splenectomy is to be considered as soon as the definite diagnosis of idiopathic thrombocytopenic purpura has been established.

Ptyalism in Pregnancy

The treatment of ptyalism in pregnancy is difficult because the aetiology is unknown. There is often, however, as in hyperemesis, a psychological underlay which manifests itself by the constant spitting—a conscious or subconscious dislike or fear of pregnancy. Usually the condition clears up by the time quickening is first felt, and this should be impressed on the patient. Calcium gluconate (10 ml. of 10 per cent. solution daily) has been given intravenously with good results in some cases. After a similar query was answered som years ago (April 14, 1945, p. 543) one correspondent advised putting very thin slices of lemon between the cheeks and the teeth. Another reported having successfully treated a patient with 20 drops of 25 per cent. benzyl benzonate in 90 per cent. alcohol taken in water every four hours.—*Brit. M. J.*, **1**:736, 1949.

Weight Increase in Pregnancy

The gain in weight during normal pregnancy is subject to wide variation, but for practical purposes is generally reckoned as 24 ± 10 lb. (10·9 ± ·5 kg.). According to L.G Chesley (*Am. J. Obstet. & Gynec.* **48**:563, 1944) two-thirds of normal women gain between 13 and 35 lb. (5·9 and 15·9 kg.) but one-sixth more than 35 lb. The total increase in any one case, however, is to some extent dependent on the woman's initial bulk, and Stander, and Pastore, (*Ibid*, **39**:928, 1940), suggest that it should not exceed 25 per cent of the pre-pregnancy weight. There are, however, many exceptions even to this. The gain does not take place regularly throughout pregnancy. In the first three months there is often little change, and even a loss may be recorded, especially when the woman has vomiting or anorexia. In the last two or three weeks there is also a tendency to lose, or to cease to gain weight, probably as a result of increased fluid excretion. It has been said that at no time should the monthly increase exceed 5 lb. (2·26 kg.), otherwise it may indicate occult œdema and the threatened onset of toxæmia. In fact this sign is quite unreliable, and there may be a gain of as much as 10 lb. (4·5 kg.) in any one month without the development of toxæmia

The increase in weight is accounted for by: full-term child, 7½ lb. (3·4 kg.); liquor amnii, 2½ lb. (1·1 kg.); placenta, 1 lb. (0·45 kg.); enlargement of uterus, 2 lb. (0·9 kg.); breast development, 3½ lb. (1·58 kg.); protein retention not included under other items, 4 lb. (1·8 kg.); increase in blood volume, 3½ lb. (1·58 kg.); while the remainder is due to fluid retention in the tissues and a general deposition of fat.—*Brit. M. J.*, **1**:831, 1949.

Endometriosis in General Abdominal Surgery

Abel (*Arch. Surg.*, **57**:286, 1948, Ref. *J.A.M.A.*, **140**:250, 1949) is of the opinion that today endometriosis is discovered in roughly half the patients subjected to abdominopelvic operation. This increased incidence results not merely from a more critical evaluation of this disease, but is real. More intrauterine and cervical cautery, with subsequent stenosis, is thought to be an important factor. The symptoms depend to some degree on the distribution of the endometrial changes, but in general can be grouped under the headings of menstrual disorders, pain and infertility. The menstrual disoders are varied, with menorrhagia or hypermenorrhœa as perhaps the outstanding ones. Irregularities of flow and even hypomenorrhœa are seen. Rectal pain, especially during the menstrual period, is also frequently a part of the story and results from invading rectovaginal implants. With involvement of the ovaries and with the fixation, dyspareunia is occasionally present. Infertility is commonly associated. The cardinal sign of endometriosis is the presence of shotty nodules in the cul-de-sac and rectovaginal septum. this observation of rectovaginal bimanual examination is almost pathognomonic of the disease. The author found that in many instances of endometriosis acute appendicitis was simulated. These cases presented a picture of generalized abdominal pain with localization in some patients. Peritoneal signs were present, apparently the result of irritation from spillage of old grumous bloody material from within the endometriotic lesions. Leukocytosis and fever were usual, and nausea was reported in most instances. The histories of 4 such patients are presented. The lesson the author has learned from such caes is that endometriosis should be kept in mind.

Detection of Early Cancer Cervix by the Papanicolaou Method

Ikeda (*Minnesota Med.*, **32**:488, 1949) stresses on the fact that the cytologic method is now well established as a major laboratory procedure in cancer diagnosis. A positive vaginal or cervical smear should never be ignored. It should be confirmed by one or more repeats, and by biopsy. A negative smear does not exclude cancer. Since the only guarantee, if any, for the cure of cancer of the cervix, at the present time is its earliest possible recognition, and since the cytologic technique has satisfactorily demonstrated its greater effectiveness, in competent hands, in detecting early or preclinical cervical cancer than any other method known, and since the routine biopsy in office practice is neither indicated nor practical, the Papanicolaou method of cyto-diagnosis or any of its modifications may profitably be employed in the routine gynecologic practice to aid in the discovery of the cases of early cancer of the cervix uteri which may otherwise be overlooked. Universal application of this method in cancer detection centres and in dispensary clinics seems to be the next step which will be demanded of the medical profession.

The technique of obtaining the smear is relatively simple. No douche or bimanual examination should precede the smear taking. It may be obtained from three separate sources, the vaginal (posterior vault), cervix, and the endometrium, all of which Papanicolaou advocates. The vaginal smear contains exfoliated cells from all three areas, and may be obtained by a pipette or a speculum; the cervical smear is obtained by swabbing or scraping the external os and the endometrial smear by means of cannula (laryngeal cannula). As to the preference for the type of the smear the cervical

or the vaginal-because of its simplicity some prefer the vaginal, which contains the cell types from all three sources Ayre and others prefer the cervical, claiming that "the cytologic smears taken from the external os of the cervix exhibited a greater concentration of cancer cells. The smear should never be allowed to dry; it should be immersed immediately while wet, into the alcohol-ether mixture for fixation. This is very important. The staining technique is slightly more cumbersome than the ordinary hematoxylin-eosin method. A few claim that the latter method is just as acceptable. The author personally prefers the original Papanicolaou technique. cells appear more transparent. The delicate nuclear structure seems to stand out more sharply, and cornification is more brilliantly brought out by his stain.

Amoebic Vaginitis

Sen (*Brit. M.J.*, **1**:808, 1949) reports a case of amoebic vaginitis in a nulliparous Nepalese widow aged 35, complaining of profuse seropurulent vaginal discharge with some soreness of the vulva and a slight burning sensation in the vagina and during micturition. She gave a history of acute oysentery about 6 months back presumably amoebic for which no specific remedy was administered.

Pelvic examination done under general anaethesia revealed: swelling of the lower part of the right labium majus; a small ulcer in the right half of the fourchette; many linear ulcers lying mostly transversely in the furrows between the folds of the mucosa; the cervix was slightly enlarged, soft and ulcerated practically over the whole of its surface.

Examination of the vaginal discharge showed many active forms of *Ent. histolytica*. Scrapings from the ulcers revealed also active *Ent. histolytica*. Examination of the stool revealed cystic forms of *Ent. histolytica*.

She was cured after a course of 12 intramuscular injections of emetine hydrochloride in doses of 1 grain daily and use of stovarsol vaginal compound after a normal saline douche at night.

Three points favour the diagnosis of amœbic vaginitis: (1) Vegetative forms of *Ent. histolytica* in the discharges and scrapings from the ulcer. (2) Rapid cure with specific amœbicidal drugs. (3) The punched-out character of the ulcers, with slightly overhanging edges and sometimes yellowish bases, situated mostly in the furrows between the folds of the vaginal mucosa, which shows very little inflammatory reaction.

Infection of the vagina is presumably by continuity and contiguity with the anorectal canal, and this may be helped mechanically by the method of ablution practised in Bengal to cleanse the part after defaecation.

The cervix is involved in about 70 per cent. of the reported cases, and the ulcer is usually placed eccentrically and away from the external os. The uterus is often enlarged, and it may be that many or all of the cases in which the uterus is enlarged, soft and tender, have some infection of the uterus. Uterine aspiration was not done in any of the reported cases.

Leucorrhœa due to *Ent. histolytica* may be fairly common in India. Cases should be investigated thoroughly from this point of view.

P.T.A.P.: The Present Position

Holt and Bousfield (*Brit. M.J.*, **1**:695, 1949) give in the following lines the summary of their observations:

Purified toxoid, aluminium phosphate precipitated (P.T.A.P.), is an accurately standardized diphtheria prophylactic, which in its antigenicity, stability, and freedom from reactions has distinct advantages over alum-precipitated toxoid (A.P.T.).

Study of the results obtained from experimental work and field trials shows that: (*a*) The optimal amount of mineral carrier for young children is 5 mg. AlPO, in a 0·5 ml. dose. (*b*) intramuscular inoculations confer appreciably better immunity than do subcutaneous. (*c*) P.T.A.P. produces a definitely better Schick conversion rate than does A.P.T. A single inoculation of 0·5 ml. P.T.A.P. containing 10 or more Lf units of purified toxoid and 10 mg. AlPO per ml. produces in children a Schick conversion rate of 95 per cent one month after injection. At three and six months the S.C.R. is still over 95 per cent, and has not fallen appreciably even after fifteen months. (*d*) P.T.A.P., adjusted to pH 6, is an antigen at least as efficient as the earlier more acid (pH 5) preparation, and causes less discomfort on inoculation.

The composition of P.T.A.P., as now prepared, is accurately described.

Infantile Diarrhoea And Vomiting

Taylors & others (*Brit. M.J.*, **2**:117, 1949) give in the following lines the summary of their observations:

A clinical and bacteriological investigation of infantile diarrhoea and vomiting was carried out. The clinical material was drawn from one outbreak of epidemic diarrhoea of the newborn (Group A), two outbreaks of diarrhoea and vomiting in a mothers and babies' hostel (Groups B and C), one outbreak in a residential nursery (Group D), intercurrent cases among sick babies in hospital (Group E), two series of admissions to gastro-enteritis units (Group F and G), and endemic diarrhoea and vomiting in a residential nursery (Group H).

No recognized intestinal pathogen was isolated, and virus investigation of fatal cases yielded negative results.

Bact. Coli sera, prepared from strains isolated from cases of Group A, led to the identification of a particular serological type, referred to as Bact. Coli D 433. It was isolated from all nine cases examined during life in this outbreak.

The same sera were subsequently used for the identification of Bact. Coli D 433 among the other groups of babies studied. It was isolated from all 22 cases (10 per cent.) of Groups B, C, and D, from 21 (91 per cent) of the 23 cases in Group E, from 6 (43 per cent) of the 14 cases in Group F ,from only 5 (21 per cent) of the 24 cases in Group G, and from none of the 14 cases in Group H.

Bact. Coli D 433 was not isolated from any of the 208 babies of the control groups.

Five babies with mild or moderate diarrhoea and vomitting had severe relapses while in gastro-entertis units. Bact. Coli D 433 was not isolated from them during the initial attacks but was present during the relapses.

Bact. Coli D 433 was isolated from cases in seven counties and during all seasons of the year. The youngest baby in whom it was found was aged 10 days and the oldest 11 months.

Bact. Coli D 43 was not isolated from rectal swab taken three to six months later from 82 infant occupants of nurseries and wards in which cases of diarrhoea and vomiting (Groups A-E) had been investigated. Fifty-one newborn babies, occupying the maternity nurseries in which epidemic diarrhoea of the newborn (Group A) had occurred, were swabbed more than a year after the outbreak. From 21 of them an anaerogenic motile Bact. Coli strain was isolated which was closely related antigenically to Bact. Coli D 433. Ten of these babies suffered from a mild diarrhoea the significance of which is at present undetermined.

Whether the serological type of Bact. Coli has any aetiological significance in diarrrhoea and vomiting is undecided. Lines for further research on this matter are indicated in the discussion.

Drugs in Helminthic Diseases

Chaudhuri (*Indian M. Gaz.*, **84**:105, 1949) gives in a tabular form a list of anthelmintics with their dosage and uses.

Drug	*Dose*		*How given*	*Mainly used for*	*Remarks*
	Adults	Children			
1. Santonin	3 gr.	1/6 gr. for each year of age.	As powder with calomel at bed time or along with chenopodium*	Roundworms	
2. Oil of chenopodium	1 c.c.	1 min. for each year of age.	In two divided doses (in gelatine capsules) at half-hourly interval*	Do	Maximum dose of 3 c.c. not recommended.
3. Carbon tetrachloride	3 c.c.	0·2 c.c. or 3 min. for each year of age.	In capsules, with milk or with 1-2 oz. saturated solution of sodium sulphate*	Hookworms, tapeworms threadworms	
4. Tetrachlorethylene ..	4 c.c.	4 min. for each year of age.	Shaken up with 1-2 oz. of S.S. sodium sulphate*	Do	
5. Hexylresorcinol ..	1 gm.	0·1 gm. for each year of age.	In gelatine capsules	Roundworms, tapeworms, hookworms	Available as 'crystoids' anthelmintic or in freshly filled hard gelatine capsules.
6. Gentian violet ..	1 gr.	1/6 gr. for each year of age.	Thrice daily one hour before meals.	Threadworms, strongyloids	Enteric-coated tablet. (Eli Lilly's Enseals) 3/20, 1/5 and ½ gr.
7. Diphenan	2 tablets, 0·5 gm. each.	1, ½, or ¼ tablet according to age.	Do	Threadworms	Avoid constipation. Use under close medical supervision.
8. Male fern, extract filicis liq. ..	45-90 min.	3 min. per year of age.	In capsules or as emulsion in 3-6 divided doses at half-hourly intervals	Tapeworms	Semi-liquids for two days before treatment and a dose of saline purgative in the previous evening.
9. Antimony salts: (*a*) Fouadin ..	1·5-5 c.c. of 7 per cent solution.	Proportionately.	Intramuscularly	Schistosomiasis filariasis	1·5, 3·5 and 5 c.c. on 1st three days: then 5 c.c. on alternative days. Total dose 45 c.c.
(*b*) Anthiomaline ..	2-3 c.c. of a 6 per cent solution.	Do	Do	Do	On alternative days up to 20 doses.
(*c*) Myostibin ..	5 c.c.	Do	Do	Do	Daily for 20 doses.
(*d*) Pentavalent compounds ..		Do	Do	Do	
10. Hetrazan	0·5-2 mg. per kg. of body weight.	Do	Orally	Filariasis	Three times daily before meals. An active filaricide.

* Given in the morning on an empty stomach.

Simple Method for Detection of Erythroblastosis in the Newborn

Dahr (*Geburtshilfe und Frauenheilkund*, **8**:732, 1948, Ref. *J.A.M.A.*, **140**363, 1949) places on a slide one drop each of AB serum and of isotonic sodium chloride solution. The two drops should not be applied by means of the same pipet. A trace of blood from umbilical cord of the newborn infant is brought into the drop of AB serum and also into isotonic sodium chloride solution. If the umbilical blood is introduced by means of a slide, different corners of the slide should be used for introduction into the two drops. The drops are stirred and spread out until a uniform mixture has been obtained. After about two minutes the slide is rocked back and forth, and this is repeated from time to time. The reaction can be read at the end of twenty minutes. If the blood of the newborn infant contains univalent Rh antibodies, they become activated by the x-protein contained in the AB serum, and as a result a fine granular agglutination is visible, but in the sodium chloride mixture no agglutination is evident. The reaction can be read with the naked eye or with a reading glass; microscopic examination is unnecessary. If no agglutination is visible in the AB serum, either the infant does not have erythroblastosis or, if he does have it, univalent Rh antibodies are lacking. Thus the method is reliable only if it is positive. It has the advantage that it is simple and rapid. If it is positive, transfusion into the vein of the umbilical cord can be begun at once without waiting for tests on the blood of the parents.

Cardiovascular Rejectees

White and others (*J.A.M.A.*, **139**:1049, 1949) in reporting on a follow-up study, made in 1947, of cardiovascular rejectees write: The study was made by special cardiovascular boards in Boston, Chicago, New York, Philadelphia and San Francisco of 303 young men who had been originally rejected for military service because of diagnoses of cardiovascular diseases, hypertension or neurocirculatory asthenia but later resubmitted as IA in 143 after examination by these same special cardiovascular boards. Certain problems are reviewed in the light of this re-examination.

Heart murmurs were the commonest cause for the original rejections, but their appraisal by the cardiologists was not considered difficult. The great majority of the murmurs were variable, unimportant and physiologic in type, being heard in at least half of these young men. In four men rheumatic heart disease developed during the four years. The most difficult problem was that of the appraisal of slight elevations of blood pressure, in particular of transient hypertension (over 150 mm. systolic or over 90 mm. diastolic, subsiding after one-half hour's rest). Of 67 men showing transient hypertension in 1943, 33 showed normal pressure readings in 1947; 17 still showed transient hypertension, and 17 had sustained hypertension. Of 35 with transient tachycardia in 1943 (heart rate over 100 subsiding after one-half hour's rest), 19 showed no tachycardia in 1947. In a few cases the reverse was true.

Another study has shown that transient hypertension and transient tachycardia are of about equal prognostic importance with regard to the later development of sustained hypertension. Heart size as measured by teleroentgenograms showed only minor variations, up or down, between the examinations in 1943 and those in 1947. In only four men did definite enlargement of the heart develop. Electrocardiography also presented little difficulty. There were a few borderline cases noted on both occasions, but only one showed a distinct abnormality at the end of the four years.

Neurocirculatory asthenia was an uncommon development over the four year yeriod—there were seven men whose condition were so diagnosed in 1947 who were considered to be normal in 1943. Vascular lesions indicating rheumatic heart disease, not evident in 1943, were noted in four men in 1947. Many others gave a history of rheumatic fever in childhood or early adult life, but showed no sequelae. In general, the 303 men served long and well in the armed forces even though a few were discharged for cardiovascular reasons and like others of the group with noncardiac disorders, are now under the jurisdiction of the Veterans Administration.

Eight of the 447 original objectees who were accepted for services were killed in action. In the group with a history of rheumatic fever in early childhood or early adult life, recurrence of activity between 1943 and 1947 was distinctly uncommon, even in those who saw active war service. In almost all, rheumatic fever had occurred at least five years before induction. Valvular lesions indicating heart disease, not evident in 1943, were noted in only four men in 1947.

Constrictive Pericarditis

White and others (*Am. J. Med. Sci.*, **216**:361, 1948) have lately described 53 cases of constrictive pericarditis seen between 1914 and 1947; two-thirds of these were in men and about one-third of the patients were over the age of forty. The commonest symptom and the one that generally came first—was dyspnoea (without orthopnoea), and the authors give evidence that this is due, not to the hydrothorax or ascites or cardiac arrhythmia, but to the constriction of the heart itself. Next in order of frequency came swelling of the ankles and legs and of the abdomen, enlargement of the liver, prominence of the neck veins, ascites, peripheral oedema, and signs of fluid or of pleural thickening at the lung bases. It is often said that with typical constrictive pericarditis enlargement of the heart is not observed, but the heart was enlarged in just over half the cases of this series. Absence of cardiac pulsation on screening—an important sign—was found in only about three-quarters. Valvular disease was absent, as also was a rheumatic history; so these cases differ from rheumatic pericarditis. In more than half the patients a hydrothorax was present on one or both sides, while in more than half the pericardium was calcified. Arrhythmias (most often fibrillation) were present in over one-third, and abnormal T-waves in four-fifths. In about one-fifth of the cases White obtained evidence of previous acute pericarditis.

The aetiology is still uncertain. G.W. Pickering has suggested that it is nearly always tuberculous; that of all forms of pericarditis the tuberculous is the most likely to be overlooked; and that in those who survive tuberculous pericarditis, constrictive pericarditis generally ensues. White separates a group of 9 cases that were certainly tuberculous and differed from the others by the shortness of their history; moreover, in these calcification and cardiac arrhythmia were absent, owing he suggests, to the relatively short duration. Of late years tuberculous pericarditis has been recognised as

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less rare than was supposed and there is now increased disposition to attribute constrictive pericarditis to this cause.

As to treatment, Andrews, Pickering, and Holmes Sellors (*Quart. J. Med.*, **17**:291, 1948) reported that of 9 cases which were operated on 6 were greatly improved. Of White's 53 patients, 42 had an operation; in 60 per cent the results were satisfactory, though some needed a second operation. White and his associates point out that the operation is sometimes difficult, for the constriction may be very wide-spread, involving the left ventricle as well as the right side; and indeed they describe 3 cases where the left ventricle was predominantly involved. They also emphasise that the calcification and adhesions may spread deeply into the heart muscle. Plainly, operation often gives excellent results when it is undertaken by one skilled in the surgery of the heart. At the same time, if the patient's symptoms are slight and can be improved by medical treatment, surgical intervention is probably best withheld; for in such cases the outlook is good.—*Lancet*, **1**:788, 1949.

Osteoarthritis of the Cervicodorsal Spine Simulating Coronary Artery Disease

Davis and Ritvo (*New England J. Med.*, **288**:857, 1948, Ref. *Am. Heart J.*, **37**:1154, 1949) discuss the clinical and roentgenologic features observed in forty-three patients with substernal or precordial pain resulting from cervicodorsal radiculitis. Of these patients, twenty-three had been thought to have coronary artery disease before the correct diagnosis was established. The diagnosis was based upon at least two of the following criteria: symptoms with definite radicular characteristics, reproduction of attacks by pressure over the spine, or prompt response to orthopedic therapy. Approximately 75 per cent of the group were men; the average age was 52 years.

In addition to precordial or substernal pain, the majority had pain reference to the shoulder girdle, neck, or jaws. Suboccipital headache and vertigo were also common.

In most of these patients, the pain occurred in attacks, usually at night while the patient was in bed or after prolonged siting. The pain was aggravated or mtld attacks initiated by coughing, sneezing, or various changes in posture. Anterior chest pain could be reproduced by spinal pressure in nineteen patients. In twenty-eight patients, response to orthopedic therapy was sufficiently striking to be of diagnostic significance. Tenderness in the region of the costochondral junction was another common finding.

The roentgenologic findings are described. Postural and osteoarthritic abnormalities in the cervical and dorsal spine occurred in much higher incidence than would be expected in unselected individuals of comparable age.

Coarctation of Aorta

Shapiro (*Am. Heart J.*, **37**:1045, 1949) writes that the diagnosis of coarctation of the aorta is still frequently missed. This is particularly true in young patients who do not reveal an increased blood pressure in the upper extremities and do not have erosion of the ribs.

Careful clinical study including inspection and palpation of the back for enlarged collateral vessels as well as auscultation over these enlarged vessels will prevent errors in diagnosis.

Routine blood pressure determinations in arms and legs as well as routine palpation of the femoral pulse will lead to a correct diagnosis.

The clinical findings in twenty-one patients have been described.

An incomplete study of the results of surgery up to the present time has been presented.

Four of the patients have been operated upon. They were all under 18 years of age. One died of acute pulmonary œdema as he was being lifted off the operating table. All four had successful aortic anastomosis performed. The result was excellent in the three surviving patients.

Hoarseness in Heart Disease

Thompson and Kistan (*Ann. Int. Med.*, **29**:259, 1948) report two cases of rheumatic heart disease associated with left recurrent laryngeal nerve paralysis. In one, a 30-year-old man who died following an attack of acute rheumatic fever, necropsy showed minimal scarring of the mitral valve and only slight enlargement of the left auricle. The other was a 31-year-old man in whom angiocardiographic studies revealed considerable enlargement of the left auricle. Common to both cases was dilatation of the pulmonary artery. Because of the peculiar anatomical relations between the left recurrent laryngeal nerve and the pulmonary artery and aorta, the dilatation of the pulmonary artery was considered to be responsible for the left vocal cord paralysis noted in the two cases. The authors also suggest that there may be another but unknown factor contributing to the left recurrent laryngeal nerve paralysis in view of the large number of cases with comparable dilatation of the pulmonary artery which do not exhibit pressure effects upon the nerve. The many reports dealing with the subject of recurrent laryngeal nerve paralysis in heart disease are also reviewed and analyzed.

Abnormal Electrocardiograms in the Absence of Demonstrable Heart Disease

Littmann (*Am. J. Med.*, **8**:337, 1948, Ref. *Am. Heart J.*, **38**:148, 1949) reports nine cases which illustrate the occurrence of inverted T waves in precordial leads in individuals without demonstrable heart disease. They were selected from 5,000 electrocardiograms which were read over a period of eighteen months. With one exception, none of the patients had any complaints referable to the heart. In that one case the symptoms were considered to be due to a marked cardiac neurosis and aerophagia.

The electrocardiogram of the first case revealed the presence of alternating ventricular premature beats. In Lead IVF the T wave of the sinus beat was sharply inverted. After several days of rest fewer extrasystoles were noted. The electrocardiogram at this time showed T-wave inversion only in the beat which followed the extrasystole.

The second and third cases showed inverted T waves in Leads CF_2 and CF_3 in one case and inverted T waves in all of the CF leads in the other. In both cases, however, the T waves in CR leads were upright and or normal amplitude. These two cases were considered to represent persistence of the juvenile pattern in the electrocardiogram of adults.

The next four cases were grouped together because of several common features. The limb leads contained T-wave deviations which varied from lowering and flattening to frank inversion. The most marked abnormalities, however, were noted in the precordial leads. The greatest degree T-wave inversion occurred in leads made at or near the apex. In all of these subjects essentially normal curves were obtained with the passage of time or following vigorous exercise. The author suggests that these patients represent instances of normal hearts with unstable T waves.

In the eighth case the electrocardiogram showed T-wave inversions in Leads CF_2, CF_3, and CF_4 and in CR_2 and CR_3. It later became apparent that the curves obtained in the morning before the patient had eaten were normal, while those made later in the day were abnormal. No significant changes were observed following exercise, hyperventilation, or the administration of atropine or prostigmine.

In the ninth case the inversion of the T waves in the CF leads was due to a proved mediastinal emphysema and pneumothorax.

The author stresses that the elestrocardiogram should be regarded merely as one diagnostic procedure which is to be integrated with other findings.

Atabrine on Cardiac Arrhythmias

Gertler and Yohalem (*Am. Heart J.*, **37**:79, 1949) give in the following words the summary of their observations:

The physiologic and pharmacologic properties of atabrine and quinidine are discussed and are shown to parallel each other closely.

Twenty-six patients with auricular fibrillation were treated with atabrine with successful results in thirteen of twenty-seven trials. Included in the fourteen patients in whom atabrine was unsuccessful were five patients with thyrotoxic heart disease and one patient with fatal pheochromocytoma with rheumatic heart disease. Quinidine, administered before atabrine was used, was ineffective in sixteen trials. In those patients in whom atabrine failed to restore a normal rhythm digitalis and/or quinidine was of no avail in all but one instance.

Six patients with cardiac arrhythmias other than auricular fibrillation were treated with atabrine; included were two cases each of nodal tachycardia, auricular flutter, and ventricular tachycardia. Atabrine was successful in three of these six cases; two of the unsuccessfully treated patients died shortly after treatment, and autopsy revealed coronary occlusion.

The best results with atabrine therapy occurred in older patients with arteriosclerotic cardiovascular disease and in younger patients in whom the arrhythmia was of less than forty-eight hours' duration.

The time at which the arrhythmias disappeared after atabrine therapy approximated the time at which the maximal blood levels were reached following intramuscular injections of atabrine.

The number of patients in whom cardiac arrhythmias were successfully treated with atabrine is too small to permit the use of Pearsonian techniques but large enough to merit further observation and trial of this drug.

Effects of Salicylates

Hoffmann and others (*Am. J. Med.*, **6**:433, 1949) during the course of the clinical evaluation of a new aspirin tablet containing aluminum hydroxide, studied the effect of aspirin in high doses on the course of acute rheumatic fever and some of the biochemical changes that occur during its administration. Their report deals particularly with the findings in respect to sedimentation rate, prothrombin concentration and acid-base balance. Eighty adult patients with acute rheumatic fever were treated with aspirin until disappearance of clinical symptoms of the disease.

On 65 patients started with control tablets of aspirin eight complained of gastric distress following ingestion. This distress disappeared when tablets containing aspirin and aluminum hydroxide were substituted. For most of the period of therapy in all patients, aspirin plus aluminum hydroxide was administered. Some symptoms of salicylism occurred in almost all patients when the plasma salicylate level was more than 30 mg. per 100 c.c.

Only 41 patients could be maintained at this level; 30 had to be given doses that produced levels under 25 mg. per 100 c.c. The sedimentation rate subsided to normal in slightly larger proportion of patients in the group with high plasma salicylate levels. The prothrombin concentration was only slightly affected by aspirin therapy. A drop below 75 per cent of normal occurred in one-third of the cases, there not being any difference in incidence in the high or moderate dose group. A moderate fall in serum bicarbonate occurred in most cases, associated with an elevated serum chloride and a slightly diminished serum sodium. The blood pH was usually normal. The urine was usually acid.

It is believed that salicylate produces a primary hyperna with alkalosis but that the accumulated salicylate produces a fixed acid acidosis and that the two effects are mutually compensatory. The apparent salicylate clearance after aspirin therapy is only about 3 per cent of the creatinin clearance when the urine is highly acid. It increases three to eight times when the urine is alkalinized with sodium bicarbonate. Most of these increase is in free salicylate. Alkalinization is therefore of prime importance in the treatment of salicylate poisoning.—*U. S. Med. Newsletter.*

Blood Changes in the Aged

Oldrich (*Edinburgh M. J.*, **55**:100, 1948) observes:

1. The red cell population of the aged is distinctly different from that of the young. The quantitative data in regard to erythrocytes, hæmoglobin, colour index, total cell volume and mean corpuscular volume do not show any difference between young and old. The mean red cell diameter, however, is distinctly larger in the old, and the scatter as measured by the standard deviation or coefficient of variation is distinctly bigger.

2. The fragility of the red cell population as measured by the osmotic resistance to different concentrations of salt solution is distinctly increased in the old as compared with the young.

The blood sedimentation rate is increased in old age and is a function of the plasma proteins, other factors being equal. This is proved by the correlation coefficients and the regression equation; also by experiments involving equal volume exchange of plasma after half an hour's centrifuging. In these experiments:—

(*a*) When cells of the young were suspended in plasma of the old, the blood sedimentation rate was increased as in the old.

(*b*) When the red cells of the old were suspended in plasma of the young, the blood sedimentation rate was as that of the young.

(*c*) When the red cells of an old person whose blood sedimentation rate was normal (between 2 and 10 mm./hr.) were suspended in a plasma of a young person whose blood sedimentation rate was normal, the blood sedimentation rate remained normal.

(*d*) When the red cells of an old person were suspended in the plasma of a young person whose blood sedimentation rate was increased, the blood sedimentation rate remained increased.

These results also show that the plasma proteins behave differently in the aged.

4. The total white blood cells are present in equal numbers in the blood of the old and the young, but the differential count shows an entirely different behaviour as regards the number of lobes. The cells, which contain more than 3 lobes, are increased in number in relation to the total (100 per cent); and at the same time the cytoplasm in the multilobulated cells contains fewer granules, in such a relation that the more lobes the nucleus has, the less granules the cytoplasm contains. Cells were even seen containing more than 5 lobes and containing scanty or no granules in the cytoplasm.

5. The non-protein nitrogen shows a distinct increase with advancing years, but not beyond the 'normal' range.

6. From all the data with regard to the red and white cell population of the aged, we might venture the hypothesis—in view of their maintained numerical quantity but different qualitative behaviour—that the bone marrow produces in one time-unit a lesser amount of red cells and leucocytes. This means that the rate of production in the aged is diminished. At the same time, however, the rate of destruction is also diminished and a cell population is maintained probably for a longer time in the older person, but apparently of a different quality.

7. The nutritional condition of the subjects has been investigated and it has been found that protein, fat, carbohydrate intake and total calorie intake are approximtely the same as that of the general population, taking body weight into account.

Anæmia in Hypothyroidism

Eisemberg (*Connecticut State M. J.*, **12**:1122, 1948, Ref. *J.A.M.A.*, **140**:251, 1949) believes that hypothyroidism is frequently overlooked in determining the etiology of obscure anæmias or those anæmias failing to respond to iron and liver therapy. One reason for this is the fact that diminished metabolism may be present without the distinctive clinic features of myxædema. Anæmia resulting from hypothyroidism may be of three types. The first type, simple hyperchromic, is the true, uncomplicated anæmia of hypothyroidism. The second type is the hypochromic, an iron deficiency anæmia modified by the co-existence of hypothyroidism. The third type, the Addisonian hyperchromic, is one of true Addisonian pernicious anæmia modified by the co-existence of hypothyroidism. The theory is presented that the effects of the thyroid gland on erythropoiesis are indirect results of changes in the rate of metabolism. A case is cited which is an example of both the first and the second type of anæmia resulting from hypothyroidism.

Prostatic Obstruction

Stewart (*Brit. M. J.*, **2**:74, 1949) at the Section of Surgery of the 170th Annual Meeting of the Brit. M. A. at Harrogate on June 28, with the president, Mr. T. V. Pearce (Harrogate), in the chair, opened the discussion by a consideration of 2,192 patients of prostatic obstruction treated in hospital and private practice. The safest course for the general practitioner was to despatch the patient suffering from acute prostatic retention to hospital. The dangers of attempting catheterization were trauma, infection, the effects of rapid decompression, and failed catheterization, but if instrumentation was performed these could be offset by a careful technique. An initial injection of 10 ml. of sterile water-soluble lubricant into the urethra was given. The catheter, its end clipped to lock the air in its lumen, was then introduced through a meatus controlled by compression of the glans. This procedure allowed a hydraulic column to advance ahead of the catheter and prevent damage to the mucosa. Catheterization should never be repeated. Suprapubic aspiration, the alternative to catheterization, carried the risk of damage to an intraperitoneal dome. "Silent retention" was easily overlooked if the bladder dome was intraperitoneal; to detect it, bimanual examination was invaluable, with ballottement of the bladder between a hand on the abdomen and a finger in the rectum. Diagnostic catheterization was dangerous, and unnecessary unless urethral stricture co-existed. In general, prostatectomy was desirable as soon as the diagnosis was established, unless coincident disease made the expectation of life short. Only if obstruction was slight and residual urine was small in amount might the patient be treated conservatively—and watchfully. Indwelling catheters required special care; the instrument should not be too large and leakage of mucus around it should be encouraged by careful and

repeated removal of the mental crust of dried discharge. The presence of a congenital stricture of the urethra called for special care; tight meatal strictures called ,for meatotomy higher strictures for transurethral prostatectomy by the perineal route.

It was a mistake to use one method of prostatectomy to the exclusion of all others. In 1,347 perurethral operations, performed with the use of the Thomson punch, the mortality had been 3·04 per cent even though most of the bad-risk cases were included. If properly performed this procedure allowed as thorough a removal as any other and there was no greater risk of recurrence. Open operation, in one or two stages, and chiefly by the transvesical route, had been performed in 613 cases, with a mortality of 2·93 per cent. The one-stage operation had been used in an increasing proportion, and in the last five years had been used in 70·9 per cent of the patients treated by open operation, with virtually the same mortality as was obtained in the 16 per cent of patients so treated in the previous five years. The main indications for the open operation were (1) the concurrence of prostatic obstruction with cancer, diverticulum, or stones in the bladder, or with congenital or acquired stricture of the urethra, and (2) large prostates weighing more than 70 g. Multiple resections were to be avoided except when the only alternative was a permanent suprapubic tube. For carcinoma of the prostate large doses of oestrogen were indicated, obstruction being relieved by transurethral wedgeresection.

Mr. Wilson Hey (Manchester) concluded from the fine results recorded in the previous paper that cases of enlarged prostate should go to the specialist and not to the general surgeon. In the preparation for operation penicillin and, if possible, streptomycin were preferable to sulphonamides. Particularly, these drugs must be given before and after catheterization. If catheterization must be performed (and suprapubic puncture was preferable) then prostatectomy should follow in 48 hours. Malignancy after removal of an apparently benign prostate was a special danger now that the survival period after prostatectomy was increasing. Subcapsular orchidectomy followed by minimal doses of oestrogen was employed in combination with prostatectomy whenever cancer was suspected.

Mr. Ashton Miller (Bristol) argued in favour of the retropubic operation. He supported the previous speakers in their advocacy of early prostatectomy and, in acute retention, immediate prostatectomy. Where immediate prostatectomy was inadvisable, low suprapubic puncture was preferred to catheterization. Diagnostic catheterization of patients not yet in acute retention was not now desirable. The desire to micturate after naturally emptying of the bladder was a better index of a high residual urine. Intravenous cystography immediately after natural micturition gave an even more precise measure of the residual urine. The transurethral operation was difficult, and in the hands of the inexpert dangerous, though its efficiency in expert hands was admitted. Transurethral resection was reserved for the small adenomatous or fibrous prostate. The only satisfactory method of distinguishing between adenomatous and fibrous obstruction was cystoscopy, or preferably cysto-urethroscopy. The retropubic operation gave, in his hands, better results than any other, though probably no one method should be used exclusively. Only in a few cases, particularly of small fibrous glands, was the operation difficult. Infection and secondary hæmorrhage were particularly troublesome in patients with chronic retention, but even in these the retropubic technique was more satisfactory than any form of two-stage operation.

Mr. John Swinney (Newcastle-upon-Tyne) attached particular importance to the character of the stream of urine observed when the patient micturated before him. Rectal examination provided little information of the total size of the enlarged gland and must be supplemented by cystourethroscopy. Cystoscopy should be followed at once by operation in cases when it provided a clear diagnosis of obstruction. The amount of residual urine was considered an unreliable guide to the bladder condition; against it must be considered the degree of tone in vesical and sphincteric muscle.

Transurethral resection was limited to glands of less than 100 g. weight—the maximum amount of tissue which could be removed in an hour. Bulky upward enlargement lent itself to the transvesical operation, bulky lateral and posterior enlargements to the retropubic. The total mortality rate was 4 to 5 per cent in any year. The lower rate (1-2 per cent) reported in the United States could not be easily explained; the speaker, using the same technique in both countries had obtained a substantially lower mortality rate in America than he had subsequently obtained in England. Perhaps the explanation was that in the former country patients, more prostate-conscious, came to the surgeon earlier.

In the subsequent discussion introduced by Mr. Ian Fraser (Belfast) vice-president of the Section, Mr. Thomas Moore (Manchester) pointed out that the transurethal procedure, often advantageous as it might be, was a serious operation if adequately performed. In his experience the retropubic operation was of less magnitude and, on the whole, better sustained by the patient. Mr. R. Macus (Liverpool) urged that streptomycin be reserved for use against the rare pyelonephritis after operation; if given before operation streptomycin-resistance might occur.

Replying, Mr. Hamilton Stewart emphasized the importance of meticulous hæmostasis in preventing post-operative hæmorrhage; serious hæmorrhage could not be controlled by catheter lavage. In the detection of malignant disease a positive diagnosis by either clinician or pathologist should stand against a negative diagnosis by the other. In the treatment of cancer of the prostate, castration and oestrogen therapy were preferable in the first instance, to be followed by deep x-ray therapy if symptoms returned or if the histological pattern of the tumour changed, as it sometimes did. Mr. Wilson Hey, replying to questions, said he preferred the vertical incision when malignant disease was suspected, because of the greater access it afforded and the transverse suprapubic incision in other cases. Hæmostasis depended on accurate use of the endotherm apparatus. The transvesical approach seemed preferable to other because of the wide visual access which it afforded. In the treatment of suspected prostatic cancer wide resection of prostate and seminal vesicles was a prerequisite, even if it put the rectum to a little hazard, or if it entailed opening the peritoneum; carcinoma sometimes developed, after prostatectocy, in the seminal vesicles.

SUPPLEMENT
Journal of the Indian Medical Association

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ASSOCIATION NOTES

NEGAPATAM BRANCH—The business part of the second annual gathering of the association celebrated on 24-7-49 was held at 2 P.M. and the following office-bearers were elected for the year 1949-50:

President—Dr. C. H. Venkateswaran, M.B.B.S., Civil Surgeon, Nagapattinam; *Vice-President*—Dr. J. Y. Arthur, B.A., L.M. & S.; *Hony. Secretaries*—Dr. S. S. Chariar, and Dr. S. Ganapathy; *Treasurer*—Dr. T. S. Varadachary; *Auditor*—Dr. D. Narayana Iyer; *Executive Committee Members*—1. Dr. A. Rama Rao. 2. Dr. V. D. Rajan. 3. Dr. Mrs. K. Daniel, 4. Dr. Miss T. K. Narayanasamy, 5. Dr. S. K. Pillai *Representative to Central Council*—Dr. N. R. Thangavelu of Nagore. *Representative to Provincial Council*—Dr. N. Radhakrishna Naidu.

At 2-30 P.M. Dr. R. Sambasivam, M.B.B.S., of Trichy gave an interesting lecture on "Review on Nutrition". This was much appreciated by the audience. In continuation of that Dr. D. K. Sabesan of Madras gave an interesting and impressive lecture on "Fistula in Ano" which was, as if it was a post-graduate course. The members adjourned for Tea in the evening by 5 P.M. by the courtesy of Messrs. Unichem Laboratory represented by Ganapathy & Co., Madras. A group photo was taken on the occasion and after a vote of thanks by Dr. J. Y. Arthur, Vice-President of the Association, the meeting came to a close. The dinner was arranged by Messrs. Associated Drug Co., of Yercaud.

NORTH ARCOT BRANCH—The annual meeting was held at 4 P.M. on 23-7-1949 in the Christian Medical College Hospital, Vellore. Many of the members of the Association and the final year students of the Christian Medical College attended the meeting.

After tea the business part of the meeting was held. Dr. V. Govindan Nair was proposed to the chair. The Secretary Dr. Mrs. K. I. Vythilingam presented the annual report and earnestly pleaded for more membership. The report was accepted and confirmed.

The election of office-bearers then took place and the following were elected for the current year:

President—Major K. N. Rao, M.D., D.G.O. *Vice-President*—Dr. Mrs. K. I. Vythilingam, M.D. *Secretary*—Dr. T. M. Kumaraswami, D.M. & S., L.O. *Joint Secretary*—Dr. M. Asirvadam, B.A., M.B.B.S. *Working Committee*—1. Dr. T. H. Somervell, 2. Dr. M. Abdulla, 3. C. Nadhamini, 4. Dr. L. Chako, 5. Dr. D. K. Rohini, 6. Dr. R. P. Nathaniel.

After the business part of the meeting Dr. T. H. Somervell delivered a very interesting lecture on "the recent advances in abdominal surgery."

RAE BARELI BRANCH—The formation of Rae Bareli Branch of I.M.A. had been a long felt need and several abortive attempts were made in previous years.

Dr. J. K. Anand, the present District Medical Officer of Health, at his own instance took the initiative and invited all the District Medical Practitioners to meet at his residence on 11-3-49.

13 medical men attended this meeting. Dr. J. K. Anand was proposed to be chair and it was unanimously resolved

"That a District Medical Association be formed and in due course it should become affiliated to the Provincial Medical Association.

"That Dr. J. K. Anand be asked to communicate with the office of the Provincial Medical Association to send him a copy of its constitutions and at least 24 enrolment forms.

Dr. S. A. Nathan was asked to act as Secretary until the election of office bearers.

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The second meeting was called on 6-4-49.

Dr. J. A. Anand was proposed to the chair.

The constitution of the Provincial Association was read and discussed.

An annual subscription of Rs. 10/- per head was unanimously fixed. This was to cover the yearly contribution of Rs. 7/- per head to the Provincial Association and the balance for stationery and other incidental expenses.

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The third meeting was held at Dr. J. K. Anand's residence on 18-5-49:

Dr. J. K. Anand was proposed tor the chair.

The following office-bearers of the District Medical Association were elected.

President—Dr. P. K. Ghosh. *Vice-President*—Dr. O. P. Gupta. *Secretary*—Dr. S. N. Nathan. *Joint Secretary and Treasurer*—Dr. J. K. Anand.

Dr. Ghosh presided. The following resolutions were passed:

(1) That the District Medical Association should meet at least once a month on the 10th of each month. In case it happened to be a Sunday the next day *i.e.*, Monday would be the day for the meeting unless otherwise notified.

(2) That all the meetings would be held in Rae Bareli at the residence of one of its members. Time and place to be announced at the previous meeting.

(3) That doctor will by rotation bring at least two cases for discussion at each meeting.

RAMNAD BRANCH—Minutes of the meeting held on 23-7-49 at 4-30 P.M. in the St. Martins, Hospital, Ramnad.

The members were entertained to tea by the Superintendent and Staff of the St. Martins Hospital, Ramnad.

The meeting commenced at 4-30 P.M. under the presidency of Lt. Col. M. A. Parthasarathy.

The letter from the Agriculture Department, Coimbatore was read. It was represented by certain members of the Association that the present price of the malt extract supplied by the factory compared unfavourably with that of the same product manufactured by other companies. This was in the way of their placing their orders for the same. The Secretary was directed to bring it to the notice of the department.

Then Dr. S. T. Narasimhan was introduced to the audience by the President, who later on delivered an interesting lecture on "Neurology in General Practice". There was an interesting discussion after the lecture.

All members then adjourned to the Lathams Bungalow where the following pictures were screened:—

1. Development of Nerves.
2. Prefrontal Leucotomy.
3. Neurosynthesis.

After dinner the meeting terminated.

SEWAN BRANCH—Proceedings of an emergent meeting held on 20-2-1949 in the premises of Dr. Mrs. P. Momin. Dr. A. Hasan presided.

Resolved that in view of the threatening of the Plague epidemic the members of the Sewan I.M.A. Branch unanimously agree to co-operate to fight the epidemic in all possible ways, the area for inoculation etc., having been distributed amongst themselves.

Further resolved that the Secretary and A.H.O. be requested to meet the sub-divisional officer for necessary requirement and help.

Considered letter No. 21, dated 31-1-49 from Islamia H. E. School, Sewan *re.* delivering 1st Aid lectures in the school and deputing a doctor for the same.

Dr. Janak Pd. Singh, A.H.O. was requested and he has kindly agreed to take up the first-aid course suited to his convenience. The Headmaster may kindly contact the Doctor concerned to arrange according to their mutual convenience.

Considered letter No. 100 (37) 48-49 dtd 29-1-49 *re.* amendment of rules of I.M.A: proposed by Dr. J. P. Agrawal of Darbhanga.

Resolved that the amendment proposed by Dr. Agrawal of Darbhanga be made in the rules.

SIRMUR BRANCH—Abstract proceedings of 2nd General Meeting held in the Civil Hospital, Nahan, on the 2nd and 3rd July, 1949. 13 members were present.

The following resolutions were unanimously adopted.

(*i*) Resolved that this meeting of the medical men of Sirmur Branch places on record its deep concern for the loss suffered by Dr. and Mrs. Devi Chand, during the recent outbreak of fire.

(*ii*) Resolved that the opinion of this Medical Association, a Provincial Organisation of Medical men belonging to Himachal Pradesh be formed as soon as possible. That the above organisation be affiliated to the Indian Medical Association as one of its Provincial bodies and that under the auspices of this organisation, a Provincial Medical Conference be held as soon as possible to provide contact and mutual exchange of ideas.

(*iii*) Also resolved that copies of the above be sent to the Chief Commissioner, Himachal Pradesh for information and necessary action and one copy each to the various District Medical Officers of other districts in Himachal Pradesh and that if the Chief Commissioner agrees to the request of this Medical Association, the First Conference of the Medical men of Himachal Pradesh be held at Nahan.

It was also decided that the follow up of the various patients discharged from the Indoor of the various hospitals should be undertaken by the Medical Officers of the area in which they happen to reside.

It was also decided that all Medical Officers should try to make a list of quacks indulging in allopathy in their respective areas so as to forward it to the higher authorities for proper action as a safeguard to the public from the harm done by the treatment of quacks.

It was decided that the decorum and discipline laid down by the Indian Medical Association in its rules and regulations be strictly adhered to by every member of the Sirmur Medical Association.

Scientific Session

The following papers were read:

1. Typhus	Dr. Devi Chand Gupta.
2. Recent advances in Medicine ..	Dr. Devi Chand Gupta.
3. Genital sores of non-venereal origin in Sirmur District ..	Dr. Mrs. Mamgain.
4. Fractures in Upper Extremity ..	Dr. F. D'Souza.
5. Hints in organisation of Maternity and Child Welfare Centres in the Mofussil	Dr. Mrs. Nirmala Devi Chand.
6. Treatment of Cardiac affections	Dr. K. M. Gautam.

Cases of interest from the indoor of the Civil Hospital were demonstrated by Dr. Kishan Sarup.

SOUTH INDIA PROVINCIAL BRANCH—Minutes of the meeting held on 20-8-49 at 4 P.M. in the O. V. C. High School, Manamadura.

The members were entertained to tea by Dr. Mrs. Sara Tirunavukkarasu and the meeting commenced at 4-45 P.M. under the presidentship of Lt. Col. Parthasarathy.

Dr. P. N. Ramasubramanyam was elected President.

Drs. Joseph Gnanadickam and Kini were elected Vice-Presidents.

Then Dr. M. N. Rajan was introduced to the audience by the President. He delivered an interesting talk on "Missed beat and its Mission" which was followed by a discussion in which many members took part.

TANJORE BRANCH—At 10 A.M. on 3-4-49, the branch held its annual meeting at the Medical School buildings, Tanjore. It was a pleasant and instructive day for the members who had come from various parts of the district, all about 92 in number.

Dr. A. S. Mannady Nair, M.B.B.S., PH.D., Surgeon-General with the Government of Madras, presided over the functions.

Dr. Muhammad Ismail, President of the Association, welcomed him and the members.

The President then delivered his address in which he dealt at great length on the "Nationalisation of Health Services' in England. He pointed out how under that scheme every member of the profession is assured of a good living at the same time ensuring the medical well being of the country at large and that no doubt the senior members of the profession vehemently opposed that scheme though it was very warmly received by the junior members. He said that in our country when there are more urgent problems pressing at present like food and clothing this scheme may not be practicable and entirely possible though it is an ideal one to be wished for.

Dr. Mannady Nair then delivered a very interesting and instructive talk on "Vitamin Therapy" confining himself strictly to the practicalities of the science and by passing the Chemistry of Vitamins, he classified vitamins as water soluble and fat soluble. He demonstrated the value and the necessity of the vitamins to the human system, detailing the manifestations in the human body by reason of vitamin deficiencies. He pointed out the curious feature how man depends on a very small, almost negligible, quantity of vitamins for his well being and how even that small quantity is denied to him in this world of plenty.

Dr. P. Ratnaswami, Professor of Social Medicine, Madras Medical College, then delivered a lecture on "Social medicine". He pointed out that it was not a separate or specialised branch of medicine but a part and parcel of general medicine. Successful therapy does not mean only or stop with, the administration of a particular remedy for a particular disease as for examole digitalis for heart failure and A.P. for Pulmonary Tuberculosis. The therapy proceeds to the investigation of the social condition of the patient with a view to save him from his environment, physical, mental and moral which are the causative factors and which are equally the causes for its resurgence after a short successful symptomatic therapy. He pointed out how this branch of science held out vast promises of humanitarian work. At the same time he was realistic to admit how it presupposes aids in men and money, which people of our poor country can hardly spare at present.

Then the members adjourned for Lunch.

The following office-bearers were elected for the current year:

President—Dr. Mohamed Ismail. *Vice-President*—Dr. P. Narayana Rao. *Secretaries*—Dr. N. R. Subramanyan and Dr. P. V. Kalyanasundaram. *Committee Members*—Drs. P. A. K. Nair, N. Ramanathan, T. M. Pillai, S. Subbulakshmi, S. Visvanathan and S. Narayanan. *Auditor for the year*—Dr. S. Narayanan.

Representitives to the I.M.A.:—I. *Central Council*—1. Dr. T. M. Pillai, L.M.P. 2. Dr. P. A. K. Nair, L.M. & S., T.D.D. II. *Provincial Council*—1. Dr. N. R. Subramanyam, 2. Dr. N. Ramanathan, 3. Dr. P. A. K. Nair.

After tea at 4 P.M., the members were treated to a discourse on "The Modern conception of Anæmias" by Dr. F. Ysander, Superintendent, Swedish Mission Hospital, Tirupattur. The genesis of R.B.C.'s found an enthusiastic apostle in him. He emphasised how anæmia is not a disease but a symptom and how the cure of anæmia lies primarily in an understanding of the causes for it rather than treating merely its outward manifestations.

An interesting discussion then followed in which several members took part. The lecturer answered their points. The lecturer pointed out that the exact role of folic acid in the treatment of anæmia is not definitely settled yet and so he advised the members to keep an open mind on the same.

The President brought the day's proceedings to a close by reverting to the "Nationalisation scheme" again and appealed to all the members to have mutual exchange of thoughts and work to the interest of the common man.

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A combined meeting of the Southern District Branches was held on 21st and 22nd May 1949 at Kodaikanal under the Presidency of Col. T. S. Shastri. Over 150 members from the districts of Mathurai, Ramnad, Tinnevelly, Tiruchirapalli, Tanjore, South Arcot, Coimbatore and Salem attended. Eleven members from the Tanjore Branch attended the meeting.

The first day session of the conference was held in the Kodaikanal Missionary Union Hall at 2 p.m. under the Presidentship of Col. T. S. Shastri. After prayer, Dr. P. Vadamalayan, President of the Madura Medical Association welcomed the gathering. Col. T. S. Shastri in the course of his presidential address expressed some of his thoughts which occurred to him as a result of his visits to Hospitals in Madras city in recent weeks. He expressed that the minimum pay of persons who should be charged for treatment in Hospitals should be fixed at Rs. 100/- instead of Rs. 50/-. He talked a few things really useful about postgraduate instruction given at present. He expressed the desirability of abolishing the L.O. and giving D.O. to all candidates irrespective of the fact whether he is a licenciate or a graduate in Medicine.

Dr. James next read a paper written by Dr. Reeve Betts of Vellore on "Thoracic Surgery". He stressed the importance of *bronchoscopy and bronchography in the diagnosis* of certain thoracic conditions. He explained in detail about the technique and how every hospital should be able to do this simple investigation in view of its importance as a direct visual evidence of pathological conditions in the thorax.

Then an interesting and lively lecture illustrated with lantern slides was given by Dr. Rambo of Christian Medical College Vellore. He gave a vivid description of "Certain external eye conditions" as vitamin A deficiency and its ocular manifestations, conjunctivitis, trachoma, vernal conjunctivitis etc., and their treatment. He advocated ½ per cent. zinc in 3 per cent boric acid solution as a prophylactic during epidemics of conjunctivitis and how it can be harmlessly carried out in institutions, schools, orphanages, etc. Dr. K. M. Ananthan, retired Civil Surgeon then gave a humorous speech about "a Medical man's impressions of South Indian Hill stations". The President supplementing the lecture pointed out the necessity for local bodies bestowing greater attention on health matters.

The gathering was then entertained at a tea party by S. G. Jeyaraj Nadar, Managing Director of Kodaikanal Motor Union Ltd. The first days session concluded after a sound film on "Angina pectoris" by the kind courtesy of the Philips Electrical Co., India Ltd.

The second day of the conference was held at Indian Club, Kodaikanal under the Presidency of Lt. Col. T. S. Shastri, Dr. P. K. Kalyanaraman, M.B.B.S., Coimbatore read a paper on "Tropical Eosinophilia". He dealt at great length on the etiology, symptomatology, diagnosis and treatment of this condition coming into prominence with the last 10 years. He strongly advocated the oral use of arsenic like carbarsone instead of injections, in the treatment of this condition in view of its absolute safety and its usefulness in the majority of cases. A lively discussion followed. The lecturer answered the points raised.

After this Dr. S. Balasubramanian, M.S., District Medical Officer, Cuddappa gave an interesting lecture on certain 'Ileocaecal conditions." He started with the surgical anatomy of the ileocaecal area, its embryonic abnormalities and their manifestations. He dealt on the various types of inflammatory conditions of the appendix and caecal area and their suitable treatment. Dr. K. Ramachandran, M.S., Madura Hospital supplementing the lecture spoke on the usefulness of streptomycin local and parenteral in the treatment of perforated appendix.

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A monthly meeting was held at Medical School buildings, Tanjore, on Sunday, the 26th June, 1949 at 4-30 P.M. with Dr. P. Narayana Rao, the Vice-President, in the chair. 35 members attended the meeting.

After tea provided by Dr. S. T. Rajamanickam, R. M. Hospital, Tanjore, the meeting commenced with a prayer. The minutes of the last two meetings were read and adopted.

A message of congratulation to Hon'ble Dr. T. S. S. Rajan was proposed and the Secretary was authorised to communicate the same.

The following condolence resolutions were passed all standing :—

(*i*) "This Association places on record the sudden demise of Dr. V. Narayanaswami Pillai, Eye Specialist, R. M. Hospital, Tanjore, a respected member of the profession and a member of the Association and conveys its sympathies to the members of his family."

(*ii*) "This Association places on record its deep sense of sorrow at the untimely demise of Dr. B. Jayaram, Medical Officer, Local Fund dispensary, Perumpannaiyur, a member of our Association and conveye its sympathies to the members of his family."

The Secretary was authorised to communicate the resolutions to the members of the bereaved families.

An interesting lecture was then delivered by Dr. A. Ramadoss, M.S., District Medical Officer, S.I.Ry., Villupuram on "Burns, its complications and treatment." He dealt at great length on the recent types of classification of burns and their modern treatment.

The lecture pointed out the importance of adequate diagnosis about the stage of burns and how with modern adequate treatment, 90 per cent. of cases though of a major type should be completely cured. He brought to the notice of the members certain additional complications of burns, like anæmia and hypoproteinæmia. In the treatment of burns, he pointed out, how good success could be achieved by least meddling prompt treatment of shock, plain vaseline gauze and crepe bandage, combination of whole blood and plasma transfusion, adequate protein diet and hospitalisation of major cases of burns.

* * * * *

A monthly meeting was held on Sunday, the 17th July, 1949, in the medical school buildings, R. M. Hospital, Tanjore with Dr. Mohamed Ismail, the President, in the chair. 44 members attended the meeting.

After tea provided by Dr. N. Ramanathan, Tanjore, the meeting commenced with the introduction of the lecturer of the day to the audience by the Secretary.

Dr. V. S. Subramanian, Ear, Nose and Throat Surgeon, Lempert Hospital, Madras, then delivered a very interesting and useful lecture on "Diagnosis and Management of common E.N.T. complaints by general practitioners." He gave a detailed account of the very common ailments of the ear, nose and throat and their treatment by ordinary practitioners advising the necessity of referring only certain types of cases to the specialists proper which cannot be ordinarily tackled by the general practitioner.

TINNEVELLY BRANCH—The monthly meeting was held in the office of the District Medical Officer, Palamcottah, on Saturday, the 30th April, 1949. Members numbering 14 were present. Dr. A. K. Rajagopalan, L.M.P., Hony. Secretary, South Indian Provincial Branch of the I.M.A., was also present.

After tea, the meeting began under the Presidentship of Dr. R. V. Padmanabhan.

The Hony. Secretary and Treasurer read out the letter from the Secretary, Madura Medical Association regarding the Joint Conference of the Medical Associations of the Southern Districts at Kodaikanal on the 21st and 22nd of May 1949.

Dr. K. Ramachandra Naidu, Medical Officer, Municipal Hospital, Tirunelveli gave a talk on "Headache".

On behalf of the Association, the Secretary thanked Dr. R. V. Padmanabhan, for presiding over the meeting and also thanked the lecturer.

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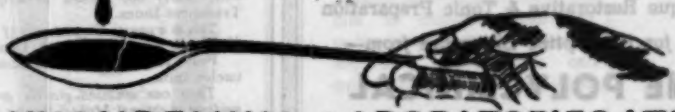

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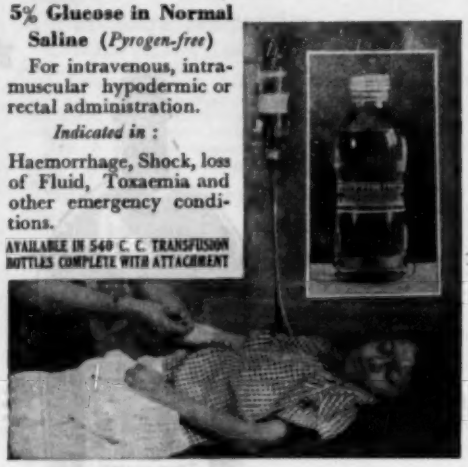

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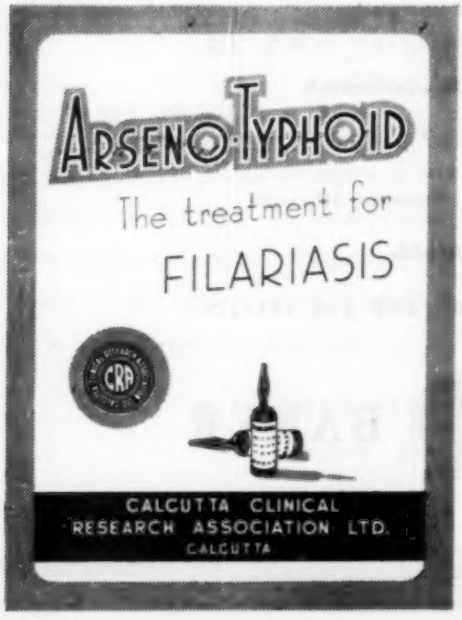

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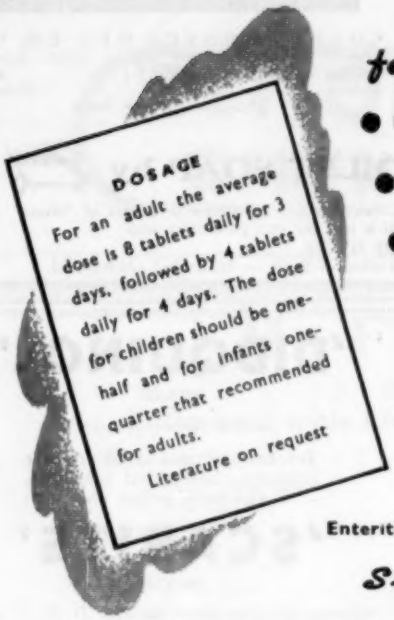
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